



Tabulated Data for FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads

(Revised March 2006)

Doug Perrault

Kevin McTaggart

Defence R&D Canada – Atlantic

Technical Memorandum

DRDC Atlantic TM 2004-044

March 2006

This page intentionally left blank.

Tabulated Data for FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads (Revised March 2006)

Doug Perrault

Kevin McTaggart

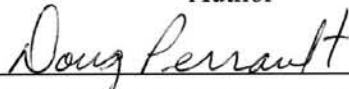
Defence R&D Canada - Atlantic

Technical Memorandum

DRDC Atlantic TM 2004-044

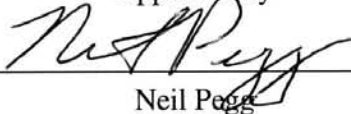
March 2006

Author



Doug Perrault and Kevin McTaggart

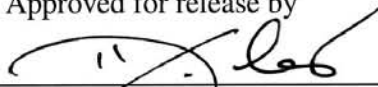
Approved by



Neil Pegg

Head, Warship Performance

Approved for release by



K. Foster

Chair/Document Review Panel

© Her Majesty the Queen as represented by the Minister of National Defence, 2005

© Sa majesté la reine, représentée par le ministre de la Défense nationale, 2005

Abstract

In support of procurement of new maritime helicopters, DRDC Atlantic was tasked to simulate motions of the HALIFAX class in seaways. The data produced will aid in the determination of helicopter securing loads, which are highly dependent upon the motions of the ship. The present work reports a systematic series of simulations modelling a HALIFAX class frigate with nominally steady speed and heading (course-keeping) in a variety of seaway conditions. This memorandum provides the data in a tabulated format for quick reference. A companion report (DRDC TM 2004-043) describes the simulation conditions and key results.

Résumé

En appui à l'acquisition des nouveaux hélicoptères maritimes, RDDC Atlantique a reçu le mandat de simuler les mouvements d'un navire de la classe HALIFAX en mer. Les données produites permettront d'aider à déterminer des charges d'armage sécuritaires pour les hélicoptères, qui sont extrêmement dépendantes des mouvements des navires. Le présent travail présente la série systématique de simulations utilisées pour modéliser une frégate de la classe Halifax croisant à une vitesse régulière et selon une certaine orientation (conservation de cap) en présence de diverses conditions maritimes. Le mémoire présente les données sous forme de tableau pour consultation rapide. Un rapport d'accompagnement (RDDC TM 2004-043) comprend une description des conditions de simulation et des données résultantes.

This page intentionally left blank.

Executive summary

Introduction

When onboard ship, maritime helicopters are secured to the deck using either a landing probe or a combination of the landing probe and chains. The loads required for securing the helicopter depend on the ship's motions. To assist with specification of design loads for the securing devices, DRDC Atlantic was tasked to compute motions of the HALIFAX class frigate at the location where the helicopter would be secured. The simulations cover a range of sea conditions, ship speeds and headings.

Principal Results

A systematic series of simulations was carried out for HALIFAX in the operational light condition, at various speeds and headings, and with a specific variation of seaway parameters for both open ocean and coastal waters. The operational light loading condition for HALIFAX was selected as a likely conservative case because motions tend to become greater as displacement decreases. The principle results are files of time series data for each simulation run, as well as statistical analyses of the motion parameters.

Significance of Results

The data provide numerical values for the key parameters (roll angle, pitch angle, accelerations of the ship at two specific securing points) for determining the design loads for securing devices. This memorandum provides the data in a tabulated format for quick reference. A companion report (DRDC TM 2004-043) describes the simulation conditions and resulting data. Care is required in using the data provided: Since motions are dependent on the displacement and mass distribution of the ship, significant changes from the operational light condition specified herein will influence the validity of the data.

Future Plans

The data presented in this report will likely be used for developing design loads for the Maritime Helicopter Project. The data could also be used for a wide variety of other purposes, such as to investigate the feasibility of specific deck operations under various combinations of seaway, ship's speed and relative heading.

Doug Perrault, Kevin McTaggart; 2006; Tabulated Data for FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads

(Revised March 2006); DRDC Atlantic TM 2004-044; Defence R&D
Canada - Atlantic.

Sommaire

Introduction

Les hélicoptères maritimes embarqués sont arrimés au pont au moyen d'un sabot d'atterrissage ou d'une combinaison de ce dernier et de chaînes. Les charges requises pour arrimer l'hélicoptère dépendent des mouvements du navire. Pour aider à la spécification des charges d'échantillonnage des dispositifs d'ancrage, RDDC Atlantique a été mandatée de calculer les mouvements d'une frégate de la classe HALIFAX à l'endroit où l'hélicoptère est arrimé. Les simulations couvrent toute une gamme de conditions maritimes, de vitesse de navire et de caps.

Principaux Résultats

Une série systématique de simulations a été effectuée pour la classe HALIFAX en conditions opérationnelles à l'état lège, selon divers vitesses et caps, ainsi qu'avec une variation spécifique des paramètres de navigabilité en haute mer et en eaux côtières. Les conditions opérationnelles à l'état lège pour la classe HALIFAX ont été sélectionnées en retenant des valeurs vraisemblablement conservatrices car les mouvements tendent à devenir plus importants lorsque que le déplacement diminue. Les principaux résultats sont des fichiers de séries de données chronologiques pour chaque essai de simulation, de même que des analyses statistiques des paramètres de mouvement.

Portée des Résultats

Les données fournissent des valeurs numériques des paramètres clés (angle de roulis, angle de tangage, accélérations du navire à deux points d'attaches spécifiques) pour déterminer les charges d'échantillonnage des dispositifs d'ancrage. Le mémoire présente ces données sous forme de tableau pour consultation rapide. Un rapport d'accompagnement (RDDC TM 2004-043) comprend une description des conditions de simulation et des données résultantes. La prudence est de mise avec les données fournies : les mouvements étant dépendants du déplacement et de la distribution de la masse du navire, tout changement important des conditions opérationnelles à l'état lège spécifiées ici influencera la validité des données.

Recherches Futurs

Les données présentées dans ce rapport seront vraisemblablement utilisées pour développer les charges d'échantillonnage pour le projet d'hélicoptère maritime. Ces données pourront également être utilisées à d'autres fins, notamment pour étudier la

faisabilité des opérations de pont spécifiques en présence de diverses combinaisons de navigabilité, de vitesse et de cap relatif de navire.

Doug Perrault, Kevin McTaggart; 2006; Tabulated Data for FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads (Revised March 2006); DRDC Atlantic TM 2004-044; Defence R&D Canada - Atlantic.

Table of contents

| | |
|------------------------------------------------------------------------------------------------------------------------------|-----|
| Abstract | i |
| Résumé | i |
| Executive summary | iii |
| Sommaire | v |
| Table of contents | vii |
| List of figures | x |
| List of tables | xxi |
| 1 Introduction | 1 |
| 2 Coordinate Systems | 1 |
| 3 Simulation Conditions | 3 |
| 4 Simulation Results | 6 |
| 5 Conclusions | 8 |
| References | 9 |
| Symbols | 10 |
| Annexes | 13 |
| A Polar Plots of Maximum Absolute Roll Angle – Bretschneider Spectra (Open Ocean) | 13 |
| B Polar Plots of Maximum Absolute Roll Angle – JONSWAP Spectra (Coastal Waters) | 19 |
| C Polar Plots of Maximum Absolute Pitch Angle – Bretschneider Spectra (Open Ocean) | 23 |
| D Polar Plots of Maximum Absolute Pitch Angle – JONSWAP Spectra (Coastal Waters) | 29 |
| E Polar Plots of Maximum Absolute Longitudinal Force Estimator at Hangar Deck – Bretschneider Spectra (Open Ocean) | 33 |

| | | |
|---|----------------------------------------------------------------------------------------------------------------------------|-----|
| F | Polar Plots of Maximum Absolute Longitudinal Force Estimator at Hangar Deck – JONSWAP Spectra (Coastal Waters) | 39 |
| G | Polar Plots of Maximum Absolute Lateral Force Estimator at Hangar Deck – Bretschneider Spectra (Open Ocean) | 43 |
| H | Polar Plots of Maximum Absolute Lateral Force Estimator at Hangar Deck – JONSWAP Spectra (Coastal Waters) | 49 |
| I | Polar Plots of Maximum Absolute Vertical Force Estimator at Hangar Deck – Bretschneider Spectra (Open Ocean) | 53 |
| J | Polar Plots of Maximum Absolute Vertical Force Estimator at Hangar Deck – JONSWAP Spectra (Coastal Waters) | 59 |
| K | Polar Plots of Maximum Absolute Longitudinal Force Estimator at Flight Deck – Bretschneider Spectra (Open Ocean) | 63 |
| L | Polar Plots of Maximum Absolute Longitudinal Force Estimator at Flight Deck – JONSWAP Spectra (Coastal Waters) | 69 |
| M | Polar Plots of Maximum Absolute Lateral Force Estimator at Flight Deck – Bretschneider Spectra (Open Ocean) | 73 |
| N | Polar Plots of Maximum Absolute Lateral Force Estimator at Flight Deck – JONSWAP Spectra (Coastal Waters) | 79 |
| O | Polar Plots of Maximum Absolute Vertical Force Estimator at Flight Deck – Bretschneider Spectra (Open Ocean) | 83 |
| P | Polar Plots of Maximum Absolute Vertical Force Estimator at Flight Deck – JONSWAP Spectra (Coastal Waters) | 89 |
| Q | Tables of Motion Maxima – Bretschneider Spectrum (Open Ocean) . . | 93 |
| R | Tables of Motion Maxima – JONSWAP Spectrum (Coastal Waters) . . | 165 |
| S | Tables of Hangar Deck Accelerations – Bretschneider Spectrum (Open Ocean) | 209 |
| T | Tables of Hangar Deck Accelerations – JONSWAP Spectrum (Coastal Waters) | 281 |
| U | Tables of Flight Deck Accelerations – Bretschneider Spectrum (Open Ocean) | 325 |

| | | |
|---|-----------------------------------------------------------------------------------|-----|
| V | Tables of Flight Deck Accelerations – JONSWAP Spectrum (Coastal Waters) | 397 |
| W | NATO Sea State Table | 441 |

List of figures

| | | |
|------|---------------------------------------------------------------------------------------------------------------------------------------|----|
| 1 | FREDYN Relative Sea Convention | 2 |
| 2 | MHP Relative Sea Convention | 2 |
| A.1 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 14 |
| A.2 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 14 |
| A.3 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 15 |
| A.4 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 15 |
| A.5 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 16 |
| A.6 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 16 |
| A.7 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 17 |
| A.8 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 17 |
| A.9 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 18 |
| A.10 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 18 |
| B.1 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 20 |
| B.2 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 20 |
| B.3 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 21 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------------|----|
| B.4 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 21 |
| B.5 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 22 |
| B.6 | Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 22 |
| C.1 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 24 |
| C.2 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 24 |
| C.3 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 25 |
| C.4 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 25 |
| C.5 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 26 |
| C.6 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 26 |
| C.7 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 27 |
| C.8 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 27 |
| C.9 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 28 |
| C.10 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 28 |
| D.1 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 30 |
| D.2 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 30 |

| | | |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| D.3 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 31 |
| D.4 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 31 |
| D.5 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 32 |
| D.6 | Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 32 |
| E.1 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 34 |
| E.2 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 34 |
| E.3 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 35 |
| E.4 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 35 |
| E.5 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 36 |
| E.6 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 36 |
| E.7 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 37 |
| E.8 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 37 |

| | | |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| E.9 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 38 |
| E.10 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 38 |
| F.1 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 40 |
| F.2 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 40 |
| F.3 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 41 |
| F.4 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 41 |
| F.5 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 42 |
| F.6 | Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 42 |
| G.1 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 44 |
| G.2 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 44 |
| G.3 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 45 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| G.4 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 45 |
| G.5 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 46 |
| G.6 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 46 |
| G.7 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 47 |
| G.8 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 47 |
| G.9 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 48 |
| G.10 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 48 |
| H.1 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 50 |
| H.2 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 50 |
| H.3 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 51 |
| H.4 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 51 |

| | | |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| H.5 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 52 |
| H.6 | Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 52 |
| I.1 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 54 |
| I.2 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 54 |
| I.3 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 55 |
| I.4 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 55 |
| I.5 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 56 |
| I.6 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 56 |
| I.7 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 57 |
| I.8 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 57 |
| I.9 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 58 |

| | | |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| I.10 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 58 |
| J.1 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 60 |
| J.2 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 60 |
| J.3 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 61 |
| J.4 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 61 |
| J.5 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 62 |
| J.6 | Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 62 |
| K.1 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 64 |
| K.2 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 64 |
| K.3 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 65 |
| K.4 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 65 |

| | | |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| K.5 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 66 |
| K.6 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 66 |
| K.7 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 67 |
| K.8 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 67 |
| K.9 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 68 |
| K.10 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 68 |
| L.1 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 70 |
| L.2 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 70 |
| L.3 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 71 |
| L.4 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 71 |
| L.5 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 72 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| L.6 | Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 72 |
| M.1 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 74 |
| M.2 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 74 |
| M.3 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 75 |
| M.4 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 75 |
| M.5 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 76 |
| M.6 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 76 |
| M.7 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 77 |
| M.8 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 77 |
| M.9 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 78 |
| M.10 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 78 |

| | | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| N.1 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 80 |
| N.2 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 80 |
| N.3 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 81 |
| N.4 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 81 |
| N.5 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 82 |
| N.6 | Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 82 |
| O.1 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s. | 84 |
| O.2 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s. | 84 |
| O.3 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s. | 85 |
| O.4 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s. | 85 |
| O.5 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s. | 86 |

| | | |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| O.6 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s. | 86 |
| O.7 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s. | 87 |
| O.8 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s. | 87 |
| O.9 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s. | 88 |
| O.10 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s. | 88 |
| P.1 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s. | 90 |
| P.2 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s. | 90 |
| P.3 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s. | 91 |
| P.4 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s. | 91 |
| P.5 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s. | 92 |
| P.6 | Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s. | 92 |

List of tables

| | | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| 1 | FREDYN Output Parameters | 3 |
| 2 | FREDYN Output Accelerations | 4 |
| 3 | Main Particulars for HALIFAX Class Frigates, Operational Light Loading Condition | 4 |
| 4 | Seaway Conditions Investigated – Bretschneider Spectra | 5 |
| 5 | Seaway Conditions Investigated – JONSWAP Spectra | 5 |
| 6 | General Symbols | 10 |
| 7 | FREDYN Symbols | 11 |
| Q.1 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots . | 94 |
| Q.2 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots . | 95 |
| Q.3 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots . | 96 |
| Q.4 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots . | 97 |
| Q.5 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots . | 98 |
| Q.6 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots . | 99 |
| Q.7 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots . | 100 |
| Q.8 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots . | 101 |
| Q.9 | Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots . | 102 |

- Q.10 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots 103
- Q.11 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots 104
- Q.12 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots 105
- Q.13 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots 106
- Q.14 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots 107
- Q.15 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots . 108
- Q.16 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots . 109
- Q.17 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots 110
- Q.18 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots 111
- Q.19 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots 112
- Q.20 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots 113
- Q.21 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots 114
- Q.22 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots . 115
- Q.23 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots . 116
- Q.24 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots 117

- Q.25 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots 118
- Q.26 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots 119
- Q.27 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots 120
- Q.28 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots 121
- Q.29 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots . 122
- Q.30 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots . 123
- Q.31 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots 124
- Q.32 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots 125
- Q.33 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots 126
- Q.34 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots 127
- Q.35 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots 128
- Q.36 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots . 129
- Q.37 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots . 130
- Q.38 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots 131
- Q.39 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots 132

- Q.40 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots 133
- Q.41 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots 134
- Q.42 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots 135
- Q.43 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots 136
- Q.44 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots 137
- Q.45 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots 138
- Q.46 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots 139
- Q.47 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots 140
- Q.48 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots 141
- Q.49 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots 142
- Q.50 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots 143
- Q.51 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots 144
- Q.52 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots 145
- Q.53 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots 146
- Q.54 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots 147

- Q.55 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots 148
- Q.56 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots 149
- Q.57 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots 150
- Q.58 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots 151
- Q.59 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots 152
- Q.60 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots 153
- Q.61 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots 154
- Q.62 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots 155
- Q.63 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots 156
- Q.64 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots 157
- Q.65 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots 158
- Q.66 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots 159
- Q.67 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots 160
- Q.68 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots 161
- Q.69 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots 162

- Q.70 Course-Keeping Ability and Motion Parameters: Bretschneider
Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots 163
- R.1 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots . 166
- R.2 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots . 167
- R.3 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots . 168
- R.4 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots . 169
- R.5 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots . 170
- R.6 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots . 171
- R.7 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots . 172
- R.8 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots . 173
- R.9 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots . 174
- R.10 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots 175
- R.11 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots 176
- R.12 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots 177
- R.13 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots 178
- R.14 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots 179

- R.15 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots . 180
- R.16 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots . 181
- R.17 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots . 182
- R.18 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots . 183
- R.19 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots . 184
- R.20 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots . 185
- R.21 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots . 186
- R.22 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots . 187
- R.23 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots . 188
- R.24 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots 189
- R.25 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots 190
- R.26 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots 191
- R.27 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots 192
- R.28 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots 193
- R.29 Course-Keeping Ability and Motion Parameters: JONSWAP
Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots . 194

| | | |
|------|--------------------------------------------------------------------------------------------------------------------------------------|-----|
| R.30 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots . | 195 |
| R.31 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots | 196 |
| R.32 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots | 197 |
| R.33 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots | 198 |
| R.34 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots | 199 |
| R.35 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots | 200 |
| R.36 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots . | 201 |
| R.37 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots . | 202 |
| R.38 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots | 203 |
| R.39 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots | 204 |
| R.40 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots | 205 |
| R.41 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots | 206 |
| R.42 | Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots | 207 |
| S.1 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s =$ 4.0 m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots | 210 |
| S.2 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s =$ 4.0 m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots | 211 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----|
| S.3 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots | 212 |
| S.4 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots | 213 |
| S.5 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots | 214 |
| S.6 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots | 215 |
| S.7 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots | 216 |
| S.8 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots | 217 |
| S.9 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots | 218 |
| S.10 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots | 219 |
| S.11 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots | 220 |
| S.12 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots | 221 |
| S.13 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots | 222 |
| S.14 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots | 223 |
| S.15 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots | 224 |
| S.16 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots | 225 |
| S.17 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots | 226 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----|
| S.18 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots | 227 |
| S.19 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots | 228 |
| S.20 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots | 229 |
| S.21 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots | 230 |
| S.22 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots | 231 |
| S.23 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots | 232 |
| S.24 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots | 233 |
| S.25 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots | 234 |
| S.26 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots | 235 |
| S.27 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots | 236 |
| S.28 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots | 237 |
| S.29 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots | 238 |
| S.30 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots | 239 |
| S.31 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots | 240 |
| S.32 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots | 241 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| S.33 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots | 242 |
| S.34 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots | 243 |
| S.35 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots | 244 |
| S.36 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots | 245 |
| S.37 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots | 246 |
| S.38 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots | 247 |
| S.39 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots | 248 |
| S.40 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots | 249 |
| S.41 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots | 250 |
| S.42 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots | 251 |
| S.43 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots | 252 |
| S.44 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots | 253 |
| S.45 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots | 254 |
| S.46 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots | 255 |
| S.47 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots | 256 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| S.48 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots | 257 |
| S.49 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots | 258 |
| S.50 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots | 259 |
| S.51 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots | 260 |
| S.52 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots | 261 |
| S.53 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots | 262 |
| S.54 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots | 263 |
| S.55 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots | 264 |
| S.56 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots | 265 |
| S.57 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots | 266 |
| S.58 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots | 267 |
| S.59 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots | 268 |
| S.60 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots | 269 |
| S.61 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots | 270 |
| S.62 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots | 271 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| S.63 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots | 272 |
| S.64 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots | 273 |
| S.65 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots | 274 |
| S.66 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots | 275 |
| S.67 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots | 276 |
| S.68 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots | 277 |
| S.69 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots | 278 |
| S.70 | Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots | 279 |
| T.1 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots | 282 |
| T.2 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots | 283 |
| T.3 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots | 284 |
| T.4 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots | 285 |
| T.5 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots | 286 |
| T.6 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots | 287 |
| T.7 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots | 288 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------|-----|
| T.8 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots | 289 |
| T.9 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots | 290 |
| T.10 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots | 291 |
| T.11 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots | 292 |
| T.12 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots | 293 |
| T.13 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots | 294 |
| T.14 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots | 295 |
| T.15 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots | 296 |
| T.16 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots | 297 |
| T.17 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots | 298 |
| T.18 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots | 299 |
| T.19 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots | 300 |
| T.20 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots | 301 |
| T.21 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots | 302 |
| T.22 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots | 303 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------|-----|
| T.23 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots | 304 |
| T.24 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots | 305 |
| T.25 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots | 306 |
| T.26 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots | 307 |
| T.27 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots | 308 |
| T.28 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots | 309 |
| T.29 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots | 310 |
| T.30 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots | 311 |
| T.31 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots | 312 |
| T.32 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots | 313 |
| T.33 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots | 314 |
| T.34 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots | 315 |
| T.35 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots | 316 |
| T.36 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots | 317 |
| T.37 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots | 318 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----|
| T.38 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots | 319 |
| T.39 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots | 320 |
| T.40 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots | 321 |
| T.41 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots | 322 |
| T.42 | Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots | 323 |
| U.1 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots | 326 |
| U.2 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots | 327 |
| U.3 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots | 328 |
| U.4 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots | 329 |
| U.5 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots | 330 |
| U.6 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots | 331 |
| U.7 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots | 332 |
| U.8 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots | 333 |
| U.9 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots | 334 |
| U.10 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots | 335 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----|
| U.11 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots | 336 |
| U.12 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots | 337 |
| U.13 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots | 338 |
| U.14 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots | 339 |
| U.15 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots | 340 |
| U.16 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots | 341 |
| U.17 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots | 342 |
| U.18 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots | 343 |
| U.19 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots | 344 |
| U.20 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots | 345 |
| U.21 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots | 346 |
| U.22 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots | 347 |
| U.23 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots | 348 |
| U.24 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots | 349 |
| U.25 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots | 350 |

| | | |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----|
| U.26 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots | 351 |
| U.27 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots | 352 |
| U.28 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots | 353 |
| U.29 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots | 354 |
| U.30 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots | 355 |
| U.31 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots | 356 |
| U.32 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots | 357 |
| U.33 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots | 358 |
| U.34 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots | 359 |
| U.35 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots | 360 |
| U.36 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots | 361 |
| U.37 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots | 362 |
| U.38 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots | 363 |
| U.39 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots | 364 |
| U.40 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots | 365 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| U.41 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots | 366 |
| U.42 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots | 367 |
| U.43 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots | 368 |
| U.44 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots | 369 |
| U.45 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots | 370 |
| U.46 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots | 371 |
| U.47 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots | 372 |
| U.48 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots | 373 |
| U.49 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots | 374 |
| U.50 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots | 375 |
| U.51 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots | 376 |
| U.52 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots | 377 |
| U.53 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots | 378 |
| U.54 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots | 379 |
| U.55 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots | 380 |

| | | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| U.56 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots | 381 |
| U.57 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots | 382 |
| U.58 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots | 383 |
| U.59 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots | 384 |
| U.60 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots | 385 |
| U.61 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots | 386 |
| U.62 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots | 387 |
| U.63 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots | 388 |
| U.64 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots | 389 |
| U.65 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots | 390 |
| U.66 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots | 391 |
| U.67 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots | 392 |
| U.68 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots | 393 |
| U.69 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots | 394 |
| U.70 | Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots | 395 |

| | | |
|------|-------------------------------------------------------------------------------------------------------------------------------|-----|
| V.1 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots | 398 |
| V.2 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots | 399 |
| V.3 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots | 400 |
| V.4 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots | 401 |
| V.5 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots | 402 |
| V.6 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots | 403 |
| V.7 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots | 404 |
| V.8 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots | 405 |
| V.9 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots | 406 |
| V.10 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots | 407 |
| V.11 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots | 408 |
| V.12 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots | 409 |
| V.13 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots | 410 |
| V.14 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots | 411 |
| V.15 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots | 412 |

| | | |
|------|-------------------------------------------------------------------------------------------------------------------------------|-----|
| V.16 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots | 413 |
| V.17 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots | 414 |
| V.18 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots | 415 |
| V.19 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots | 416 |
| V.20 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots | 417 |
| V.21 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots | 418 |
| V.22 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots | 419 |
| V.23 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots | 420 |
| V.24 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots | 421 |
| V.25 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots | 422 |
| V.26 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots | 423 |
| V.27 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots | 424 |
| V.28 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots | 425 |
| V.29 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots | 426 |
| V.30 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots | 427 |

| | | |
|------|-------------------------------------------------------------------------------------------------------------------------------|-----|
| V.31 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots | 428 |
| V.32 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots | 429 |
| V.33 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots | 430 |
| V.34 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots | 431 |
| V.35 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots | 432 |
| V.36 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots | 433 |
| V.37 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots | 434 |
| V.38 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots | 435 |
| V.39 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots | 436 |
| V.40 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots | 437 |
| V.41 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots | 438 |
| V.42 | Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots | 439 |
| W.1 | NATO Sea State Table (After Table D-1 in NATO STANAG 4194) . . . | 441 |

This page intentionally left blank.

1 Introduction

The Department of National Defence's Maritime Helicopter Project (MHP) is responsible for procurement of new ship-borne helicopters, including the full integration of the helicopter and on-board support systems with the ship. During operation in heavy seas, ship-borne helicopters are secured to the deck using either a landing probe or a combination of the landing probe and chains. The loads required for securing the helicopter are highly dependent upon the motions of the ship. To assist with specification of design loads, the Maritime Helicopter Project tasked DRDC Atlantic to compute motions of the HALIFAX class (aka Canadian Patrol Frigate, or CPF for short) in terms of accelerations of the helicopter parked at locations either in the hangar or on the flight deck over a range of sea conditions, ship speeds and headings. MHP asked for a comprehensive set of data to include several seaway conditions that affect the securing of helicopters in the hangar of a HALIFAX. This memorandum provides the tabulated data from simulations for a HALIFAX class frigate with nominally steady speed and heading (course-keeping) in each seaway. Also included are polar plots of the maximum absolute values of the most relevant (to the MHP) parameters. A companion report describes the simulation conditions and resulting data [1].

2 Coordinate Systems

FREDYN uses an earth-fixed axis system (x_e, y_e, z_e) and a ship-fixed axis system (x_g, y_g, z_g) , as shown in Figure 1. The plane $x_e - y_e$ lies in the still waterplane, with the z_e axis pointing downward. The ship-fixed system (x_g, y_g, z_g) , which has its origin at the ship center of gravity, rotates and translates as the ship moves. When the ship is at rest in a calm water, the z_g axis points downward. Note that in the FREDYN output, these axes and all other parameters are represented by capital letters, as in Figure 1. Translations in position, as well as velocities and accelerations are positive in the direction of the axes. Rotations and rotational velocities and accelerations are positive when they are in accordance with the right-hand rule (with the right hand thumb pointing along the axis, the fingers curl in the direction of a positive rotation).

It should be noted that in the FREDYN program astern seas are considered to have zero relative angle (see Figure 1), which is different from the MHP convention where head seas are considered to be at zero relative angle (see Figure 2). The FREDYN convention is converted to the MHP convention in the data tables.

Table 1 gives some of the main FREDYN output parameters. Note that the output value for ZE, the vertical displacement of the ship CG, is given relative to its value

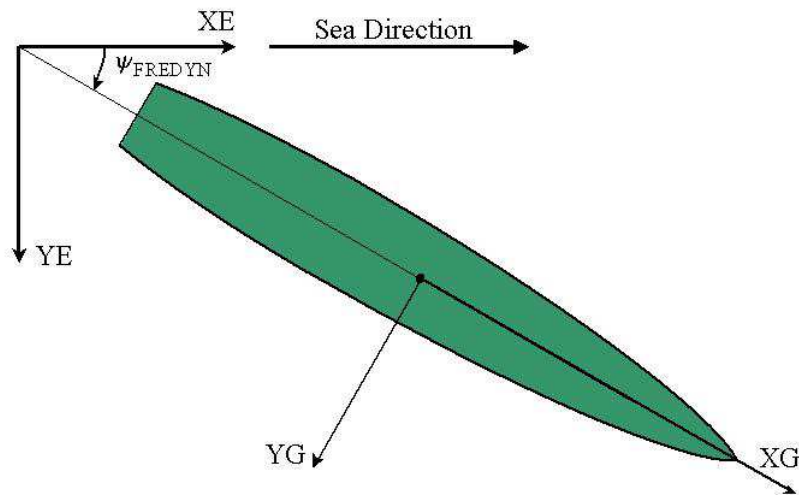


Figure 1: FREDYN Relative Sea Convention

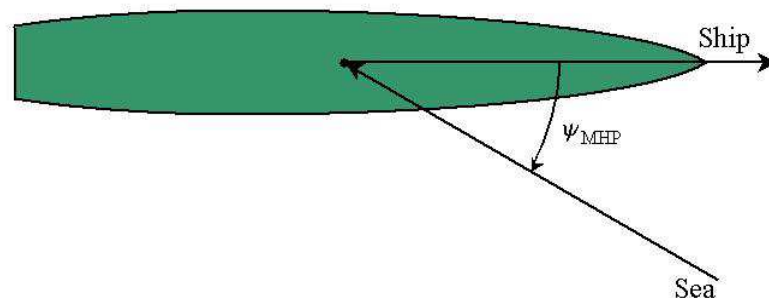


Figure 2: MHP Relative Sea Convention

when the ship is at rest in calm water. Table 2 gives some of the acceleration

Table 1: FREDYN Output Parameters

| Parameter | Units | Description |
|------------|---------|-----------------------------------------------------------------------------------------------------------------|
| T | (s) | Time relative to beginning of simulation |
| ZETAG | (m) | Wave surface displacement at ship CG |
| ALFAY | (deg) | Beamwise component of wave slope at ship CG |
| XE | (m) | Displacement of ship CG along x_e axis |
| YE | (m) | Displacement of ship CG along y_e axis |
| ZE | (m) | Displacement of ship CG along z_e axis (relative to calm water value) |
| PHI | (deg) | Ship roll angle about x_e axis, positive starboard side down |
| THETA | (deg) | Ship pitch angle about y_e axis, positive bow up |
| PSI | (deg) | Ship yaw angle about z_e axis, positive bow to starboard (also represents ship heading relative to x_e) |
| PSI - PSI0 | (deg) | Ship heading relative to initial heading, positive bow to starboard |
| UG | (m/s) | Speed of ship CG in direction x_g |
| VG | (m/s) | Speed of ship CG in direction y_g |
| WG | (m/s) | Speed of ship CG in direction z_g |
| P | (deg/s) | Roll velocity about x_g , positive starboard side down |
| Q | (deg/s) | Pitch velocity about y_g , positive bow up |
| R | (deg/s) | Yaw velocity about z_g , positive bow to starboard |
| DEL(1) | (deg) | Rudder angle, positive trailing edge to port |

parameters also generated by FREDYN.

3 Simulation Conditions

The conditions for the simulations were specified by the Maritime Helicopter Project. The operational light loading condition¹ for HALIFAX (see Table 3) was selected as a likely conservative case because motions tend to become greater as displacement decreases.

Several seaway conditions were investigated in order to give a comprehensive set of data. Bretschneider spectra were used to simulate deep water seaways, and JON-SWAP spectra (with a Gamma value of 2) were used to simulate littoral seaways. Tables 4 and 5 give the respective particulars of the specific seaways modelled. As can be seen in these tables, each sea state has two corresponding wave periods,

¹The operational light loading condition used herein is the best estimate of what that condition will be when the helicopters are put into service. The actual condition at that time will likely be somewhat different.

Table 2: FREDYN Output Accelerations

| Parameter | Units | Description |
|-----------|-----------------------|------------------------------------------------------------------|
| XCOG | (m/s ²) | Acceleration of ship CG in direction x_g |
| YCOG | (m/s ²) | Acceleration of ship CG in direction y_g |
| ZCOG | (m/s ²) | Acceleration of ship CG in direction z_g |
| PDOT | (deg/s ²) | Roll acceleration about x_g , positive starboard side down |
| QDOT | (deg/s ²) | Pitch acceleration about y_g , positive bow up |
| RDOT | (deg/s ²) | Yaw acceleration about z_g , positive bow to starboard |
| X1 | (m/s ²) | Acceleration of 1 st point on ship, parallel to x_g |
| Y1 | (m/s ²) | Acceleration of 1 st point on ship, parallel to y_g |
| Z1 | (m/s ²) | Acceleration of 1 st point on ship, parallel to z_g |
| X2 | (m/s ²) | Acceleration of 2 nd point on ship, parallel to x_g |
| Y2 | (m/s ²) | Acceleration of 2 nd point on ship, parallel to y_g |
| Z2 | (m/s ²) | Acceleration of 2 nd point on ship, parallel to z_g |

Table 3: Main Particulars for HALIFAX Class Frigates, Operational Light Loading Condition

| | | |
|--------------------------------------------------------------------|-------|--------|
| Length, L | 124.5 | m |
| Beam, B | 14.8 | m |
| Midships draft, T_{mid} | 4.967 | m |
| Trim by stern, t_s | 0.0 | m |
| Displacement, Δ | 4700 | tonnes |
| Longitudinal centre of gravity, \overline{LCG} , aft of midships | 2.8 | m |
| Vertical centre of gravity, \overline{KG} | 6.70 | m |
| Metacentric height, \overline{GM}_{fluid} | 0.89 | m |

Table 4: Seaway Conditions Investigated – Bretschneider Spectra

| Sea State | Seaway Type | H _S (m) | T _P (s) | Notes |
|------------------------------------------------------------------------------|---------------|--------------------|--------------------|---------------------------|
| 5 | Bretschneider | 4.0 | 8.3 | T _P = OONA 5% |
| | | | 15.5 | T _P = OONA 95% |
| 6 | Bretschneider | 6.0 | 10.3 | T _P ≈ OONA 5% |
| | | | 16.2 | T _P = OONA 95% |
| 7 | Bretschneider | 9.0 | 13.1 | T _P ≈ OONA 5% |
| | | | 18.5 | T _P = OONA 95% |
| 8 | Bretschneider | 14.0 | 16.4 | T _P ~ OONA 5% |
| | | | 18.6 | T _P = OONA 95% |
| >8 | Bretschneider | 17.7 | 20.0 | T _P = OONA 5% |
| | | | 25.7 | T _P = OONA 95% |
| H _S – Significant Wave Height; T _P – Peak Wave Period; | | | | |
| OONA – Open Ocean North Atlantic (ref NATO Sea State Table) | | | | |

Table 5: Seaway Conditions Investigated – JONSWAP Spectra

| Sea State | Seaway Type | H _S (m) | T _P (s) | Notes |
|------------------------------------------------------------------------------|-------------|--------------------|--------------------|---------------------------|
| 5 | JONSWAP | 4.0 | 8.2 | T _P = LECC 5% |
| | | | 13.6 | T _P = LECC 95% |
| 6 | JONSWAP | 6.0 | 9.3 | T _P = LECC 5% |
| | | | 13.6 | T _P = LECC 95% |
| 7 | JONSWAP | 9.0 | 11.0 | T _P = LECC 5% |
| | | | 17.1 | T _P = LECC 95% |
| H _S – Significant Wave Height; T _P – Peak Wave Period; | | | | |
| LECC – Littoral East Coast Canada | | | | |
| (ref TDC Wind and Wave Atlas, East Coast of Canada) | | | | |

each representing roughly a practical limit of wave period for that particular sea state. The selected wave periods represent the 5th and 95th percentiles, given the significant wave height. In all cases the significant wave height is the upper value for the associated sea state. The last two Bretschneider seaways (Sea State > 8) are based on the HALIFAX performance requirements for survivability without serious damage to mission-essential systems in a seaway with $H_S > 17.7$ m.

Long-crested irregular seaways were simulated using linear superposition of 20 sinusoidal components to form a unidirectional seaway. Unidirectional seaways tend to be conservative (i.e. they generally represent the worst case) since all the energy flux is flowing in the same direction. Simulated motions vary with seed numbers used to generate the random phases. However, the variation of motion statistics with input phase seeds is usually very small when the ship does not approach capsizes.

For each seaway simulations were conducted for a matrix of ship speeds and headings:

Ship Speed: 0 to 30kts in 5kt increments

Ship Heading: 0° to 345° in 15° increments

For each wave height the corresponding mean wind speed at 19.5 m elevation is assumed to be from the starboard beam (regardless of wave direction) and given by

$$v = 1.823H_S + 3.45$$

in m/s .

For simulations representing a nominal ship speed, the propeller RPM was set to a value such that FREDYN would give the desired ship speed in calm water. The propeller RPM used to give a desired ship speed with FREDYN will differ from the actual propeller RPM for the HALIFAX class due to assumptions made in numerical modelling.

It should be noted that FREDYN does not model variable pitch propellers, and that the present results are for the HALIFAX propellers set to a specified pitch value.

The program FREDYN requires average wave period, T_{wa} , as an input parameter. The following relationship, based on a Bretschneider spectrum, was used to determine average wave period as a function of a given peak wave period:

$$T_{wa} = 0.772T_P$$

The simulation time step was $0.1s$ for all runs, and the duration of each simulation was one hour ($3620s$ including a ramp-up time for eliminating integration start-up transients), which is considered adequate for providing enough motion data for meaningful statistical analysis.

4 Simulation Results

Additional processing was performed to extract the statistical data (mean value, standard deviation, minimum value and maximum value) for the following parameters:

- Speed;
- Heading (converted to MHP convention);

- Heave (position);
- Roll (angle); and
- Pitch (angle).
- Longitudinal (with respect to the ship centerline) acceleration at the hangar
- Lateral (with respect to the ship centerline) acceleration at the hangar
- Vertical acceleration at the hangar
- Generalized longitudinal force estimator at the hangar
- Generalized lateral force estimator at the hangar
- Longitudinal (with respect to the ship centerline) acceleration at the flight deck
- Lateral (with respect to the ship centerline) acceleration at the flight deck
- Vertical acceleration at the flight deck
- Generalized longitudinal force estimator at the flight deck
- Generalized lateral force estimator at the flight deck

For an explanation of the generalized force estimators, see [1].

A complete set of polar plots for roll and pitch angles, as well as all force estimators at the flight deck and hangar deck locations are included in annexes A through P. The polar plots can be read intuitively by imagining oneself on the ship facing the bow (top of plot) with the port to the left. Each of the radial lines represents the relative direction of the incoming seaway. The radial lines are shown for 30° increments on the polar plots, with 90° to the starboard and 270° to the port.. The rings in the plots represent (less intuitively) the ships speed in 10 knot increments. The plots are colour coded such that blue represents a low magnitude of the parameter being plotted, and red represents a high value.

Tabulated data is presented in annexes Q and R for heave, roll, and pitch for each seaway simulated. Further data are given in annexes S through V for the accelerations at the flight deck and hangar deck locations². In both cases, the data reported are the maximum absolute value of the parameter in a given simulation run, and the standard deviation associated with the mean value of the parameter for that run.

²Actual securing points may not be on the centerline of the ship. The current proposed securing device allows for variances of ± 0.5 m fore and aft, and ± 0.5 m athwartships. Slightly higher loads (accelerations) may occur with off-center securing points.

The maximum absolute value is the most important value for determining securing loads, while the standard deviation gives an indication of the variability of the motion parameter.

5 Conclusions

A comprehensive study was carried out to define the motion characteristics of HAL-IFAX in a broad variety of sea states. The results provide data for determining the loads induced on a secured helicopter by the moving ship.

References

1. D. Perrault and K. A. McTaggart. FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads. Technical Memorandum DRDC Atlantic TM 2004-043, Defence Research and Development Canada - Atlantic, 2004.

Symbols

Table 6: General Symbols

| Symbol | Description |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ϕ | Roll angle |
| θ | Pitch angle |
| ψ | Yaw (heading) angle |
| ψ_{FREDYN} | Yaw angle of ship with respect to sea direction - FREDYN convention |
| ψ_{MHP} | Sea direction with respect to ship - MHP convention |
| μ | Coefficient of friction |
| Δ | Displacement |
| t_s | Trim by stern |
| x_e, y_e, z_e | earth-fixed axes |
| x_g, y_g, z_g | ship-fixed axes (fixed at CG) |
| B | Beam |
| \overline{GM}_{fluid} | Metacentric height, corrected for free surface |
| H_S | Significant wave height |
| \overline{KG} | Vertical centre of gravity above baseline |
| L | Length between perpendiculars |
| \overline{LCG} | Longitudinal centre of gravity, aft of midships |
| T_{3f}, T_{3v} | Coordinate transformation from earth-fixed reference frame to ship-fixed reference frame for translational velocities and rotational velocities respectively |
| T_{mid} | Midships draft |
| T_P | Peak wave period |

Table 7: FREDYN Symbols

| Symbol | Description |
|------------------|--------------------------------------------------------------------------|
| ALFAY | Beamwise component of wave slope at ship CG |
| DEL(1) | Rudder angle |
| P, Q, R | Roll, pitch, yaw velocities about x_g, y_g, z_g resp. |
| PDOT, QDOT, RDOT | Roll, pitch, yaw accelerations about x_g, y_g, z_g resp. |
| PHI, THETA, PSI | Roll, pitch, yaw (heading) angles |
| PSI - PSI0 | Ship heading relative to initial heading |
| T | Time relative to beginning of simulation |
| UG, VG, WG | Speed of ship CG in direction x_g, y_g, z_g resp. |
| X1, Y1, Z1 | Accel. of 1 st pt. on ship, parallel to x_g, y_g, z_g resp. |
| X2, Y2, Z2 | Accel. of 2 nd pt. on ship, parallel to x_g, y_g, z_g resp. |
| XCOG, YCOG, ZCOG | Accel. of ship CG in direction x_g, y_g, z_g resp. |
| XE, YE, ZE | Displacement of ship CG along x_e, y_e, z_e resp. |
| ZETAG | Wave elevation at ship CG |

This page intentionally left blank.

Annex A
Polar Plots of Maximum Absolute Roll Angle
– Bretschneider Spectra (Open Ocean)

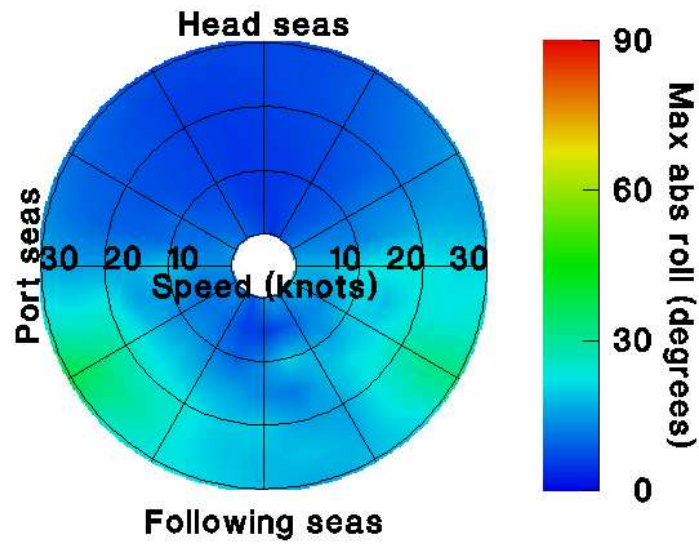


Figure A.1: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

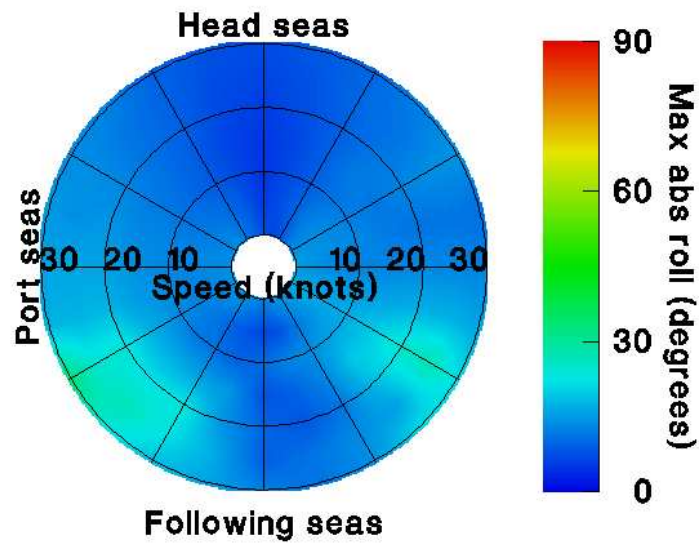


Figure A.2: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

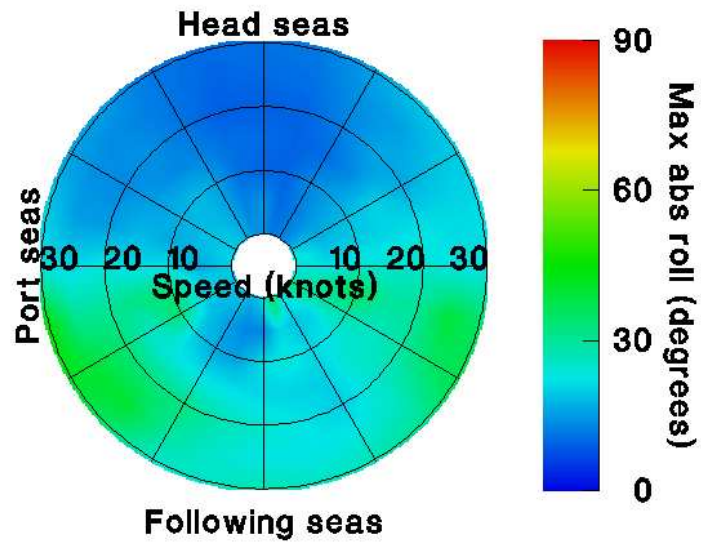


Figure A.3: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

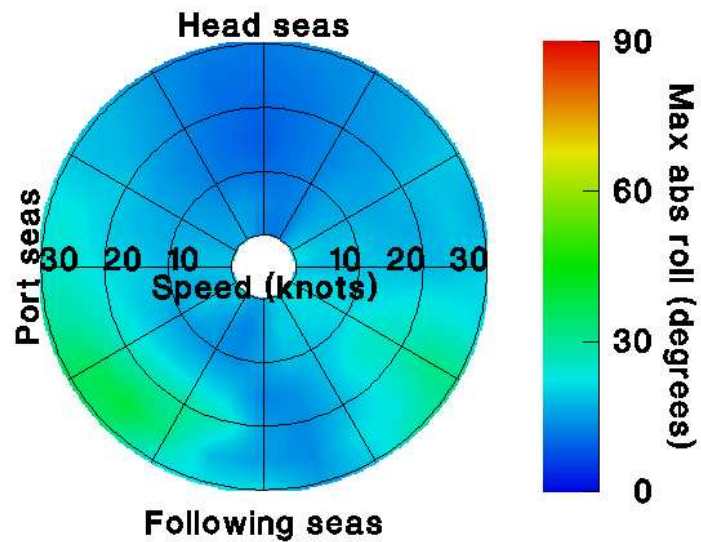


Figure A.4: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

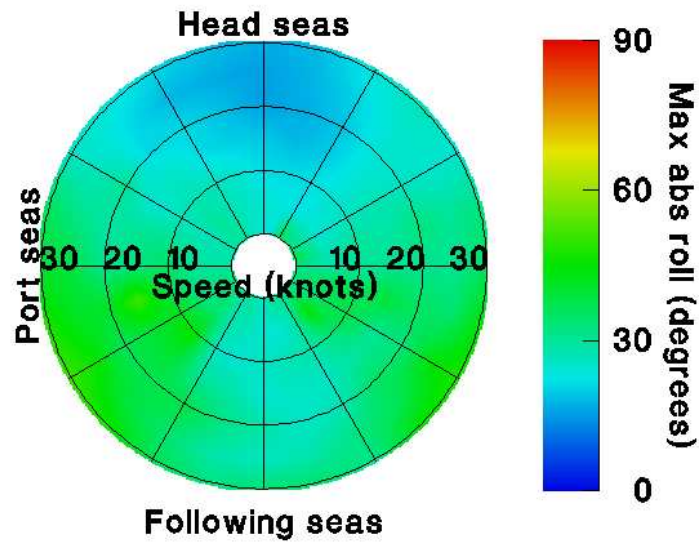


Figure A.5: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

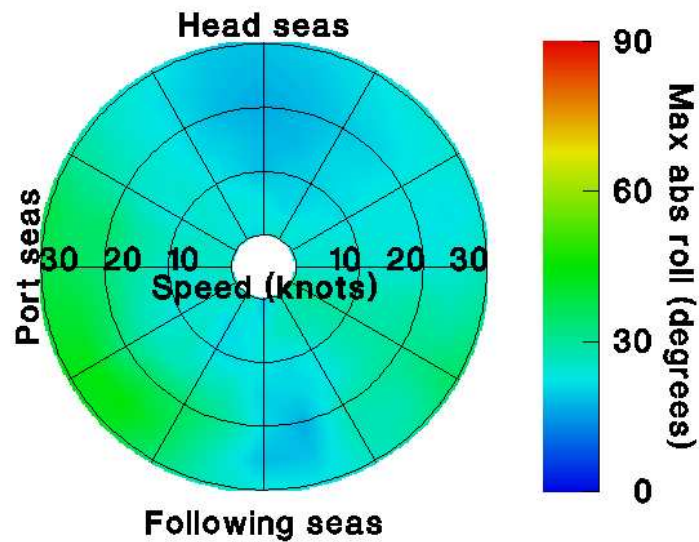


Figure A.6: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

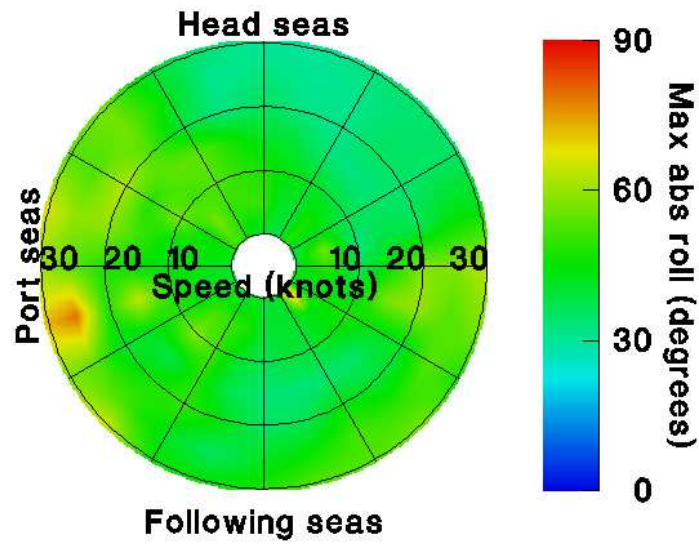


Figure A.7: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

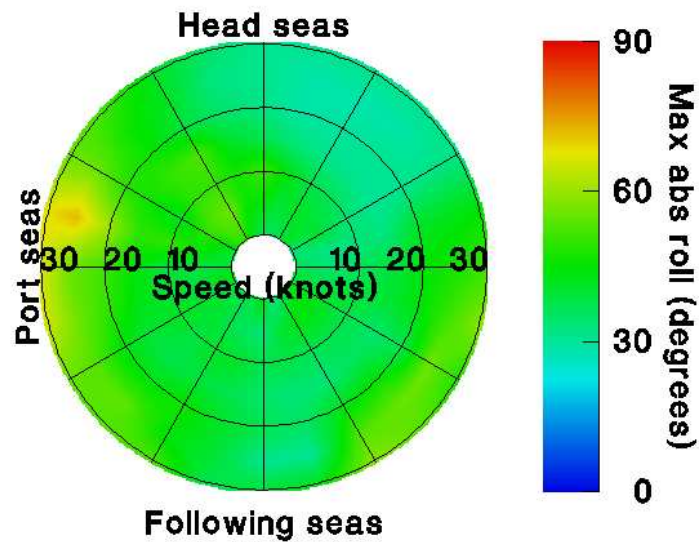


Figure A.8: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

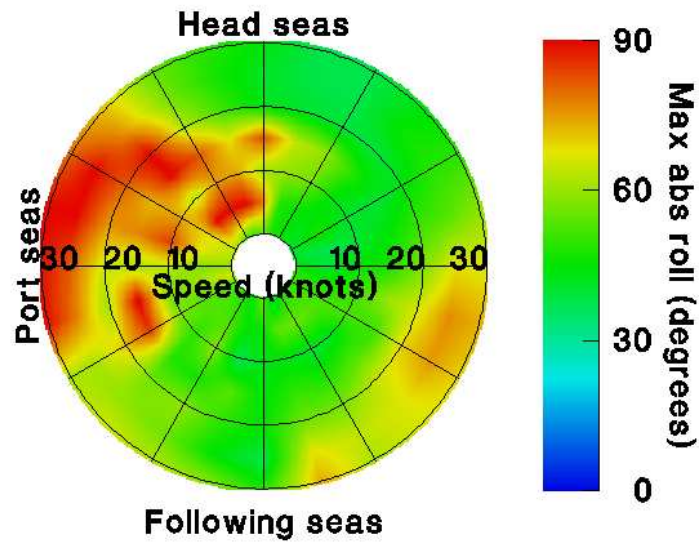


Figure A.9: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

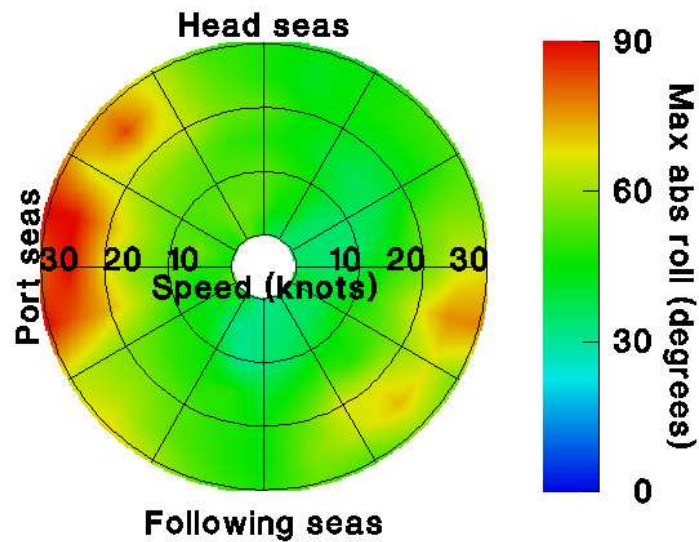


Figure A.10: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex B
Polar Plots of Maximum Absolute Roll Angle
– JONSWAP Spectra (Coastal Waters)

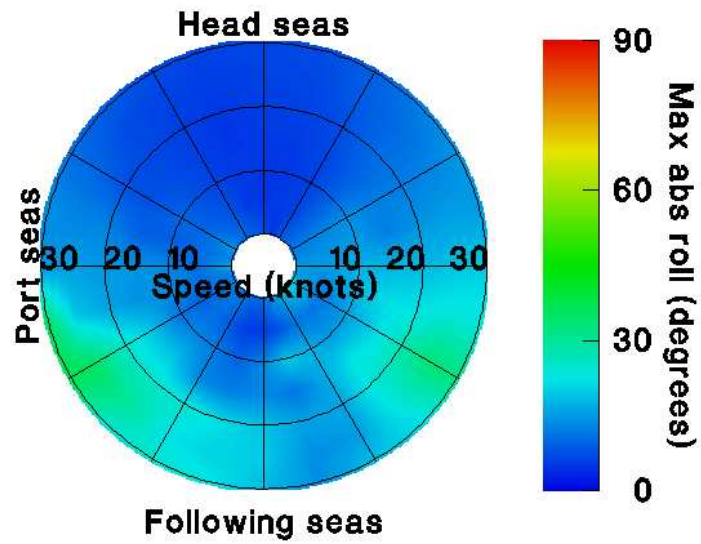


Figure B.1: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

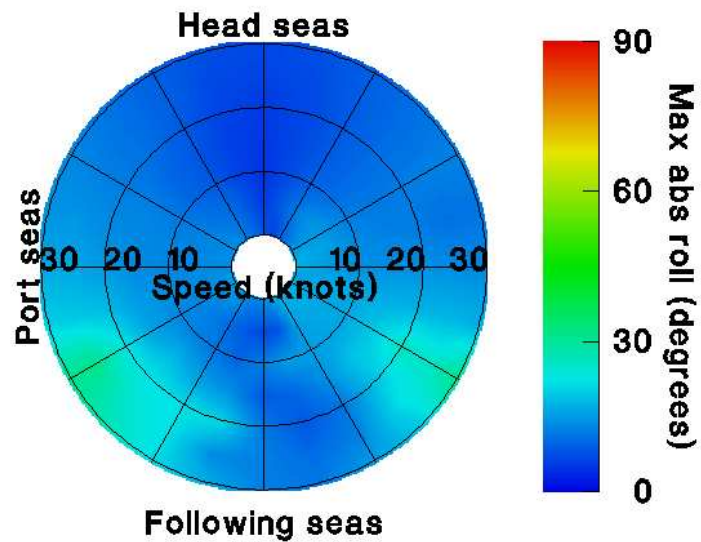


Figure B.2: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

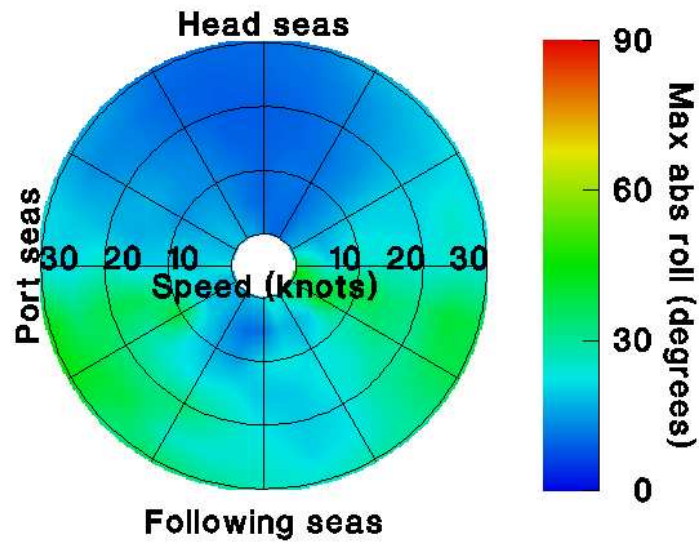


Figure B.3: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

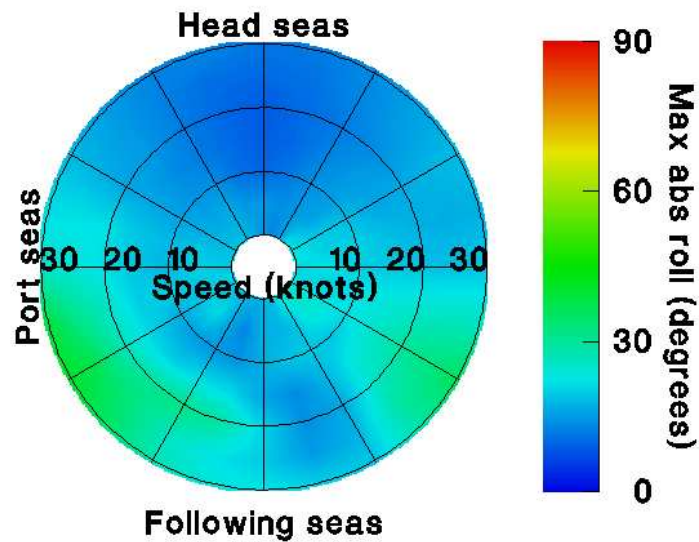


Figure B.4: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

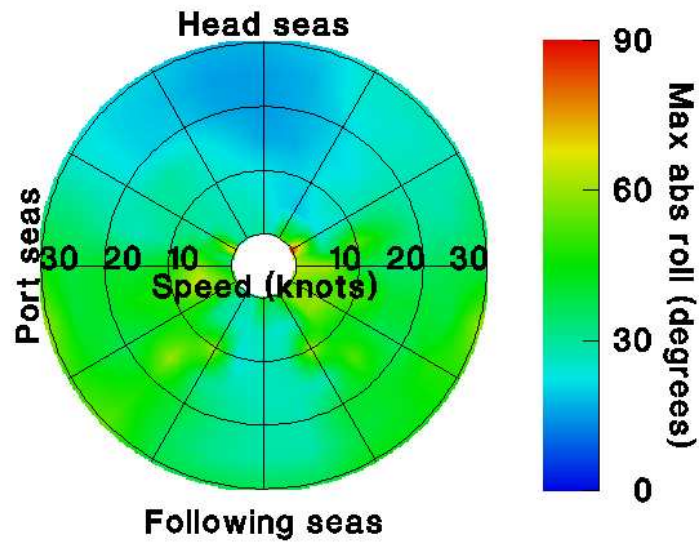


Figure B.5: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

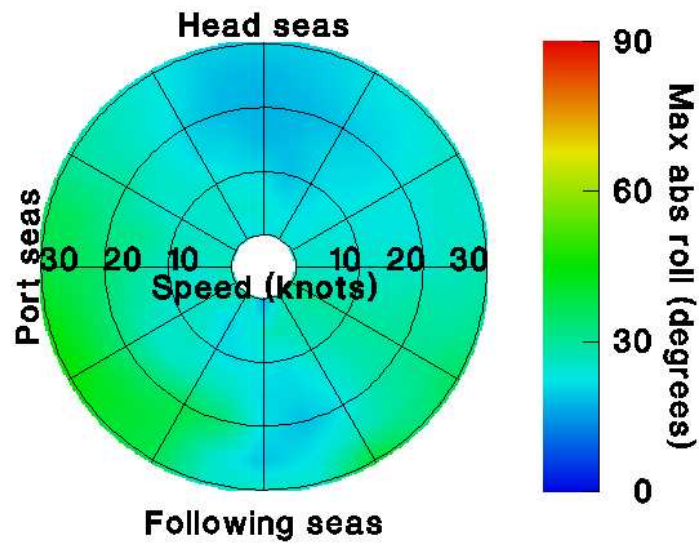


Figure B.6: Max. Abs. Roll Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex C
Polar Plots of Maximum Absolute Pitch
Angle – Bretschneider Spectra (Open Ocean)

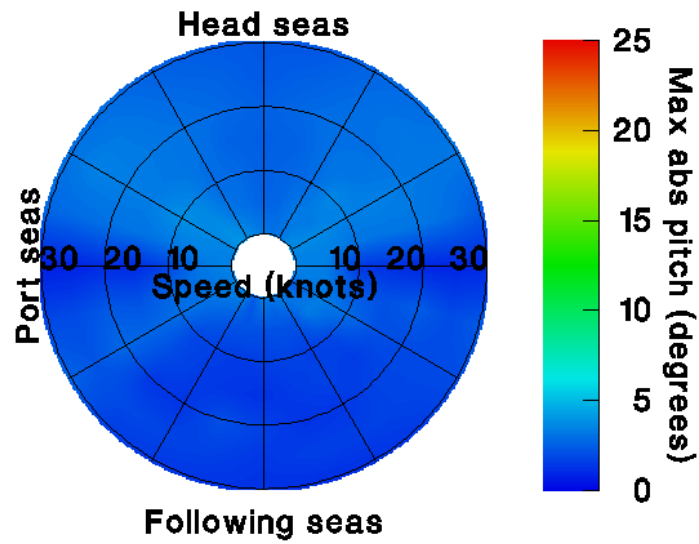


Figure C.1: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

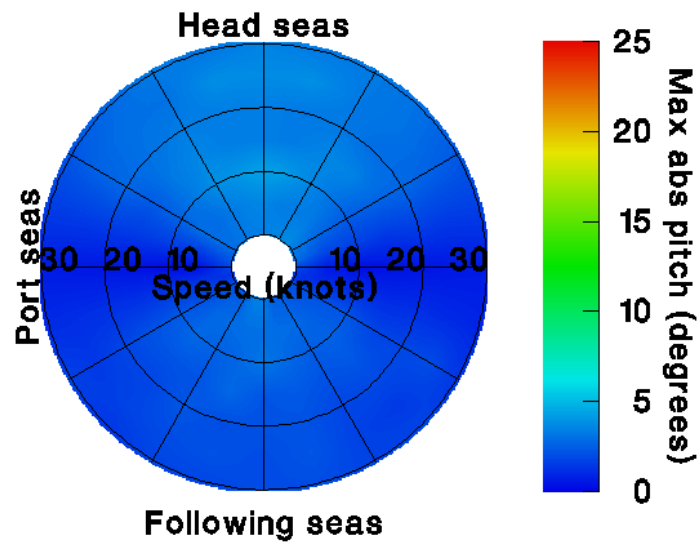


Figure C.2: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

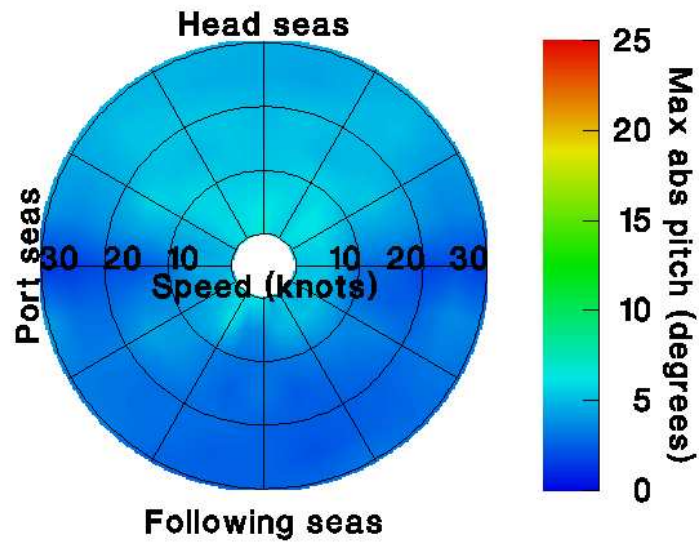


Figure C.3: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

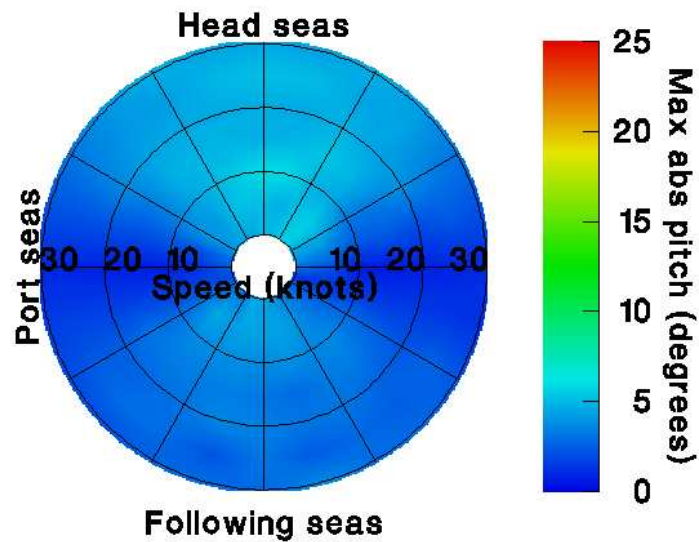


Figure C.4: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

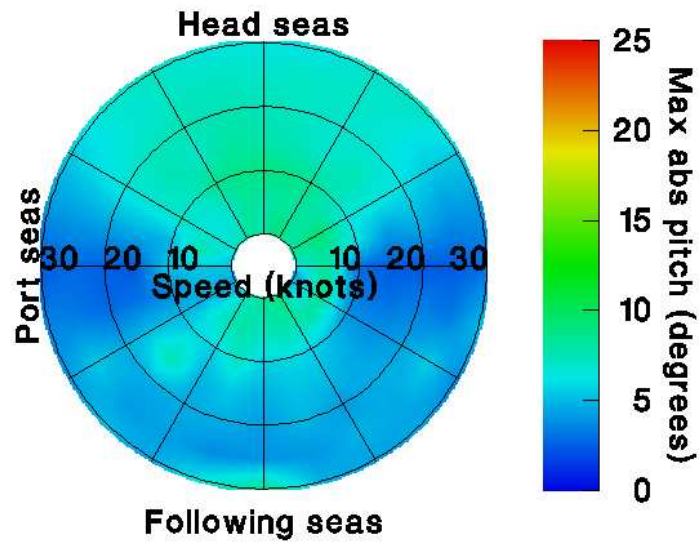


Figure C.5: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

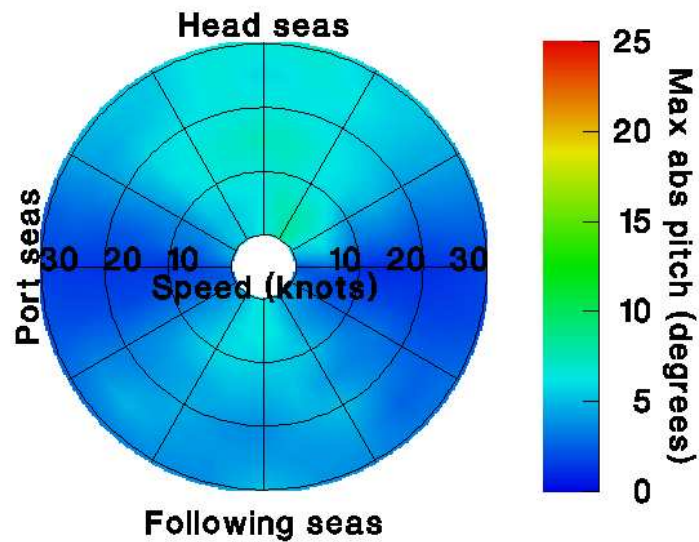


Figure C.6: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

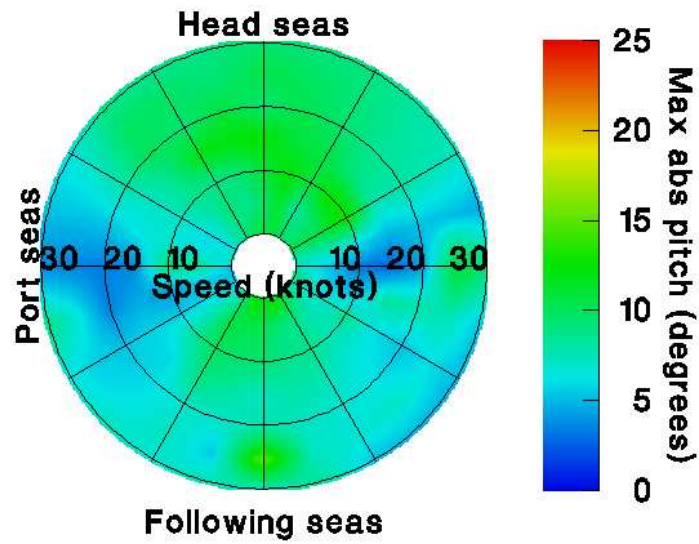


Figure C.7: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

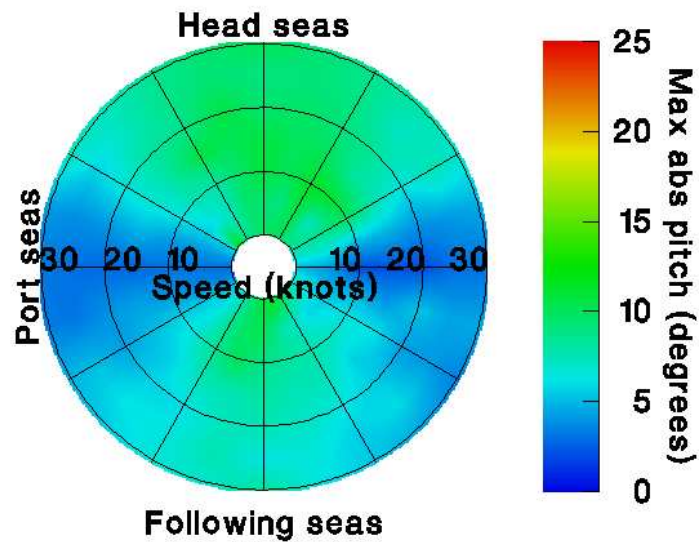


Figure C.8: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

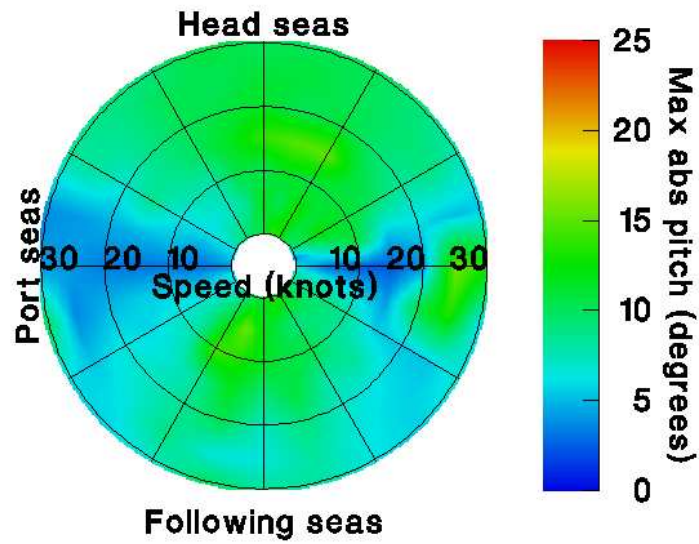


Figure C.9: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

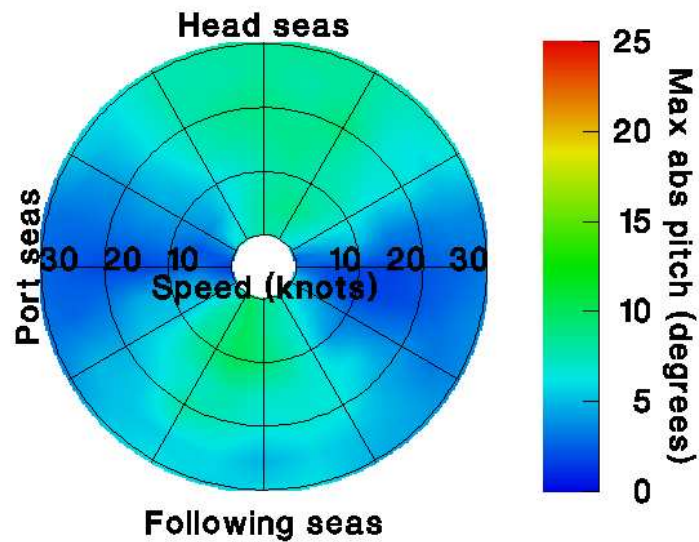


Figure C.10: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex D
Polar Plots of Maximum Absolute Pitch
Angle – JONSWAP Spectra (Coastal Waters)

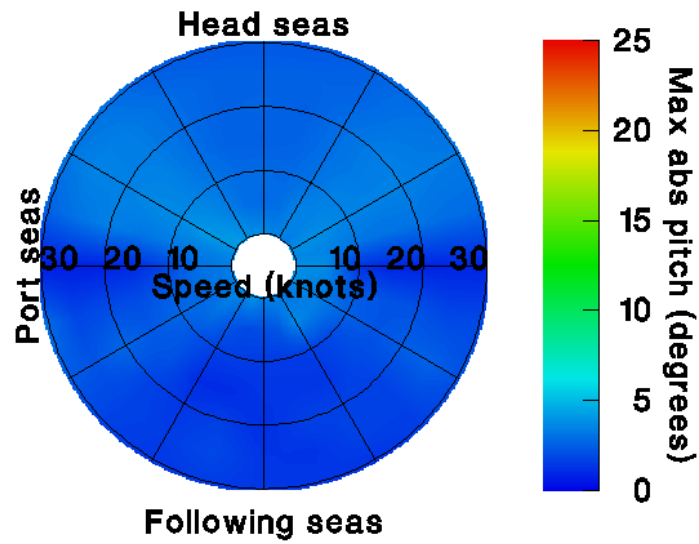


Figure D.1: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

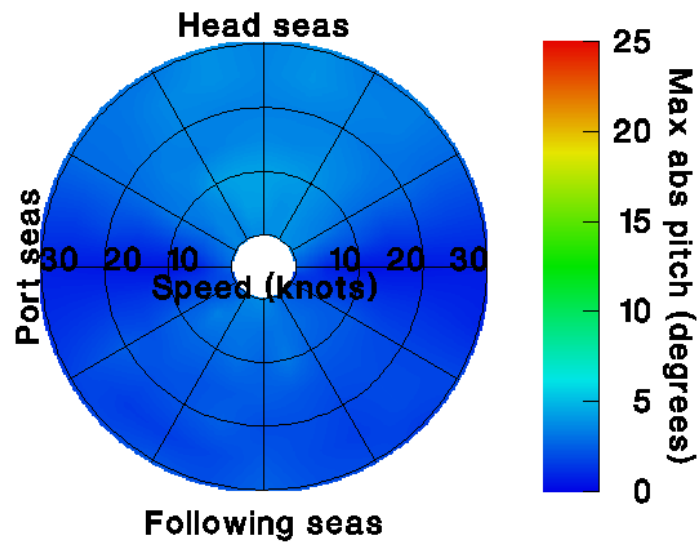


Figure D.2: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

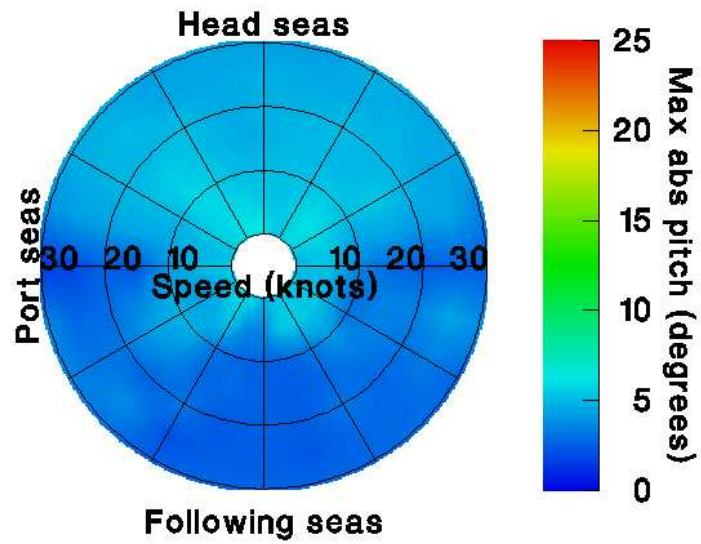


Figure D.3: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

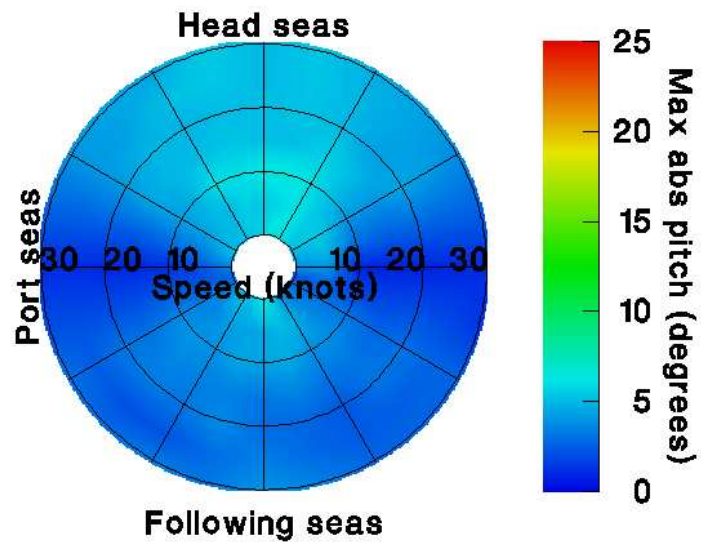


Figure D.4: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

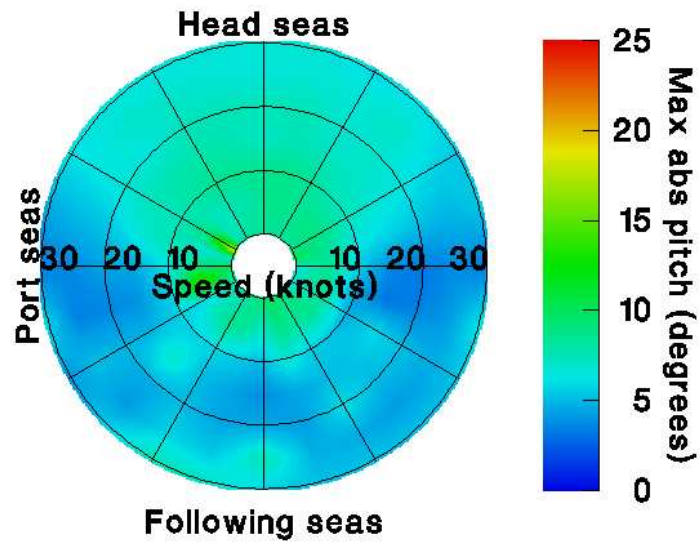


Figure D.5: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

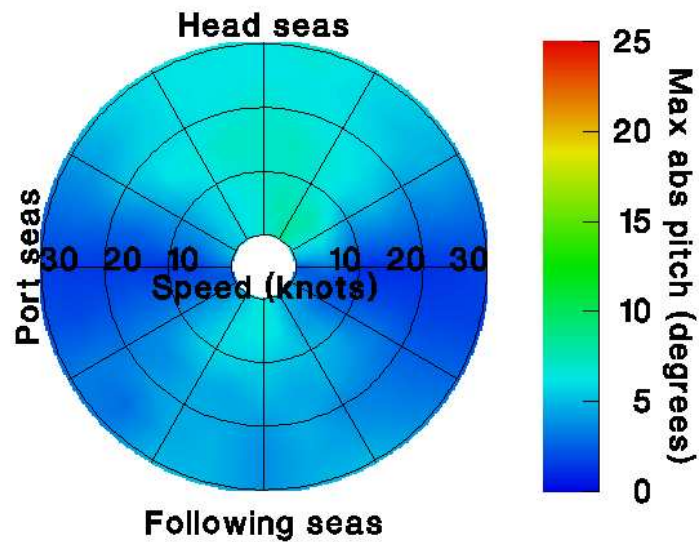


Figure D.6: Max. Abs. Pitch Angles with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex E
Polar Plots of Maximum Absolute
Longitudinal Force Estimator at Hangar
Deck – Bretschneider Spectra (Open Ocean)

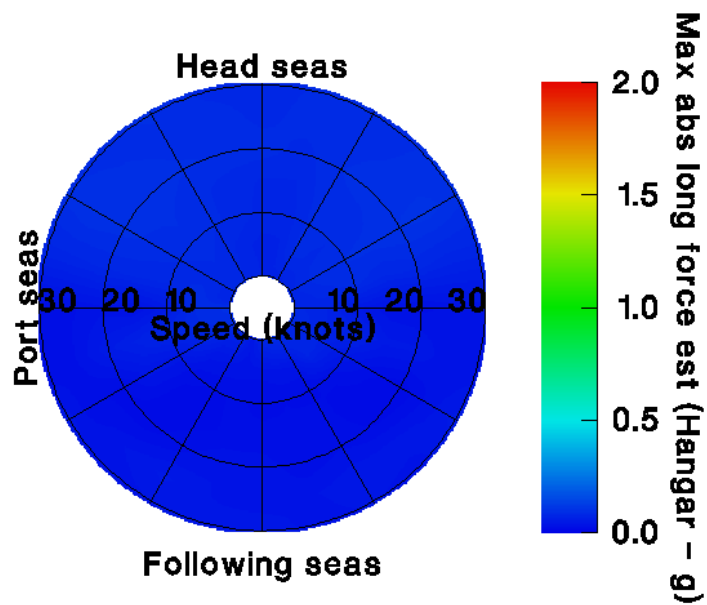


Figure E.1: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

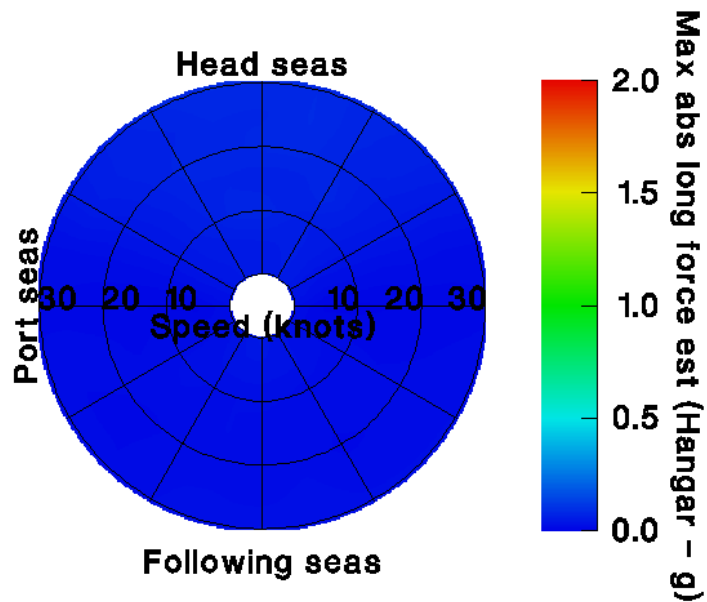


Figure E.2: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

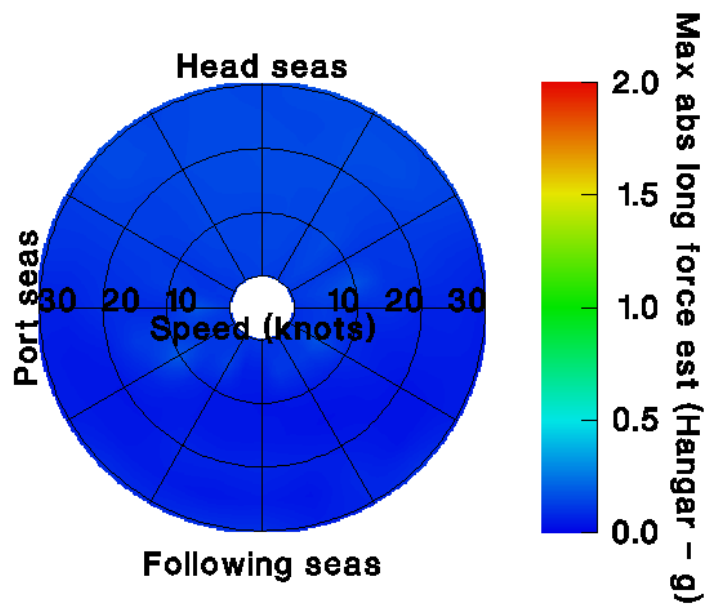


Figure E.3: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

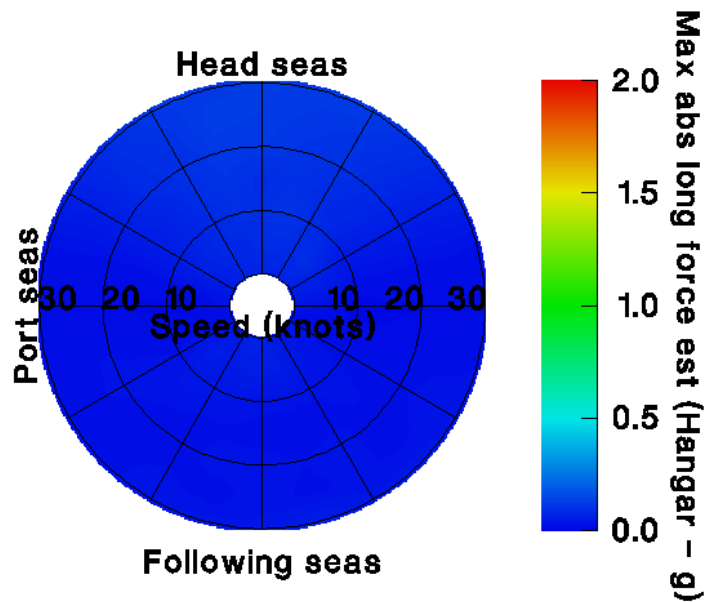


Figure E.4: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

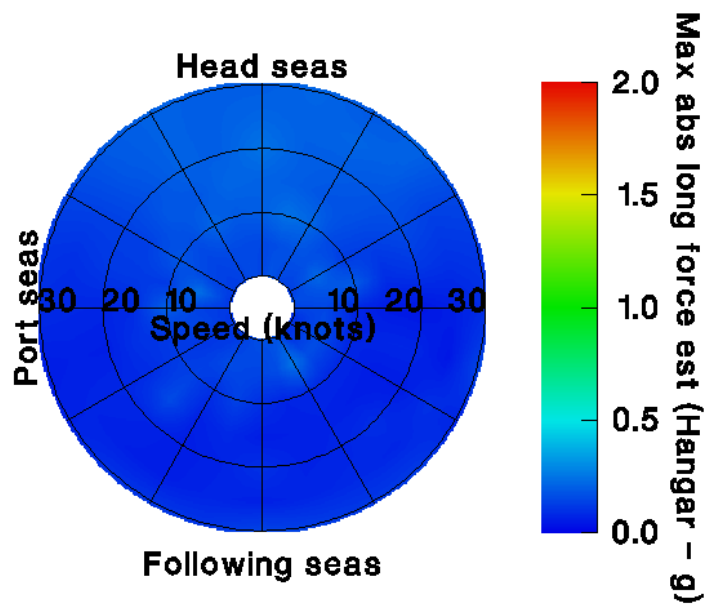


Figure E.5: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

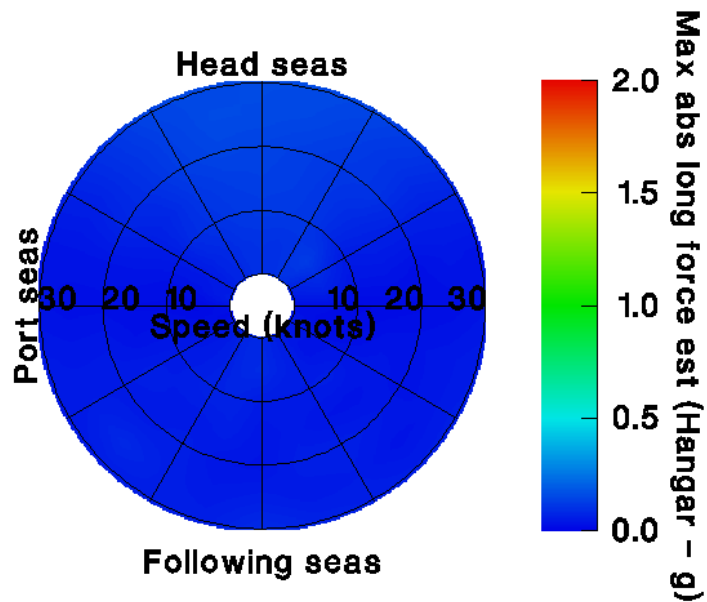


Figure E.6: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

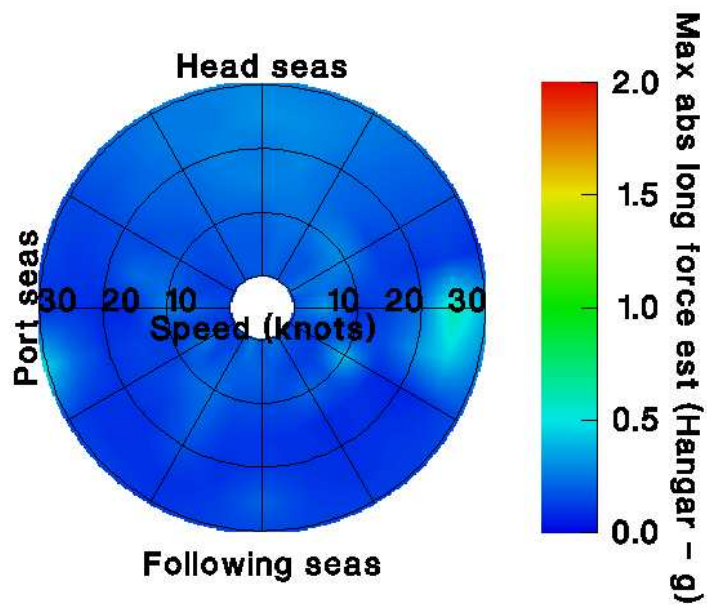


Figure E.7: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

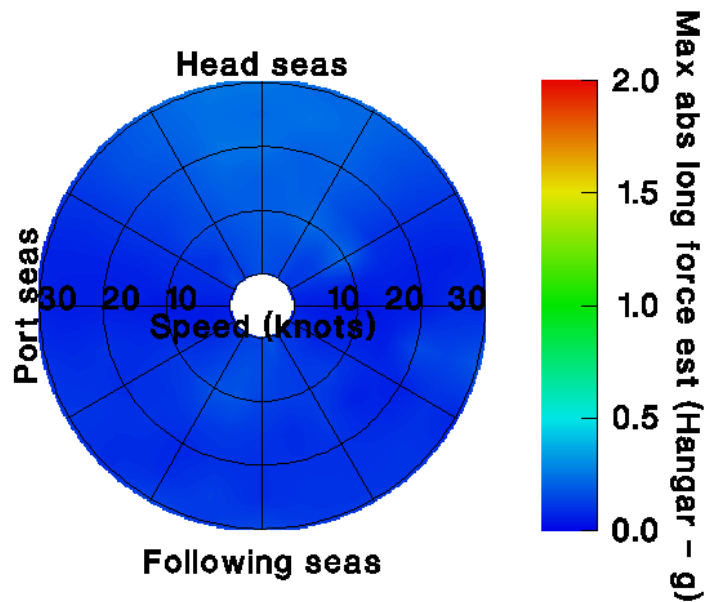


Figure E.8: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

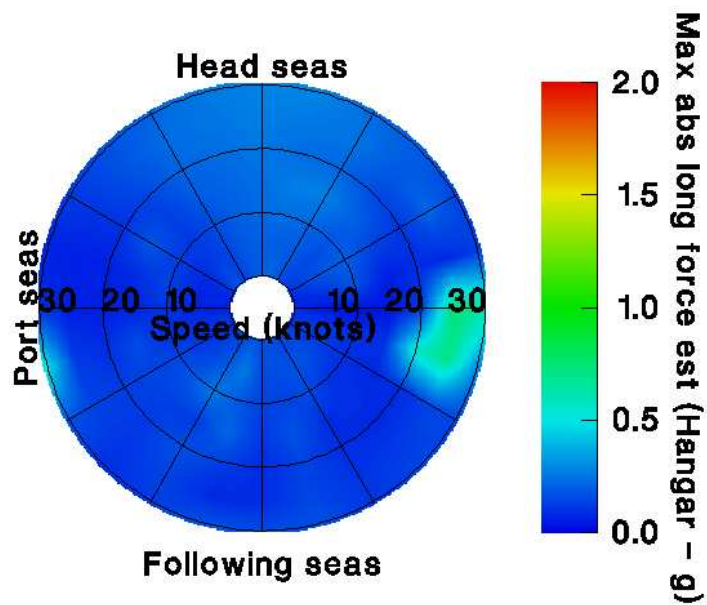


Figure E.9: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

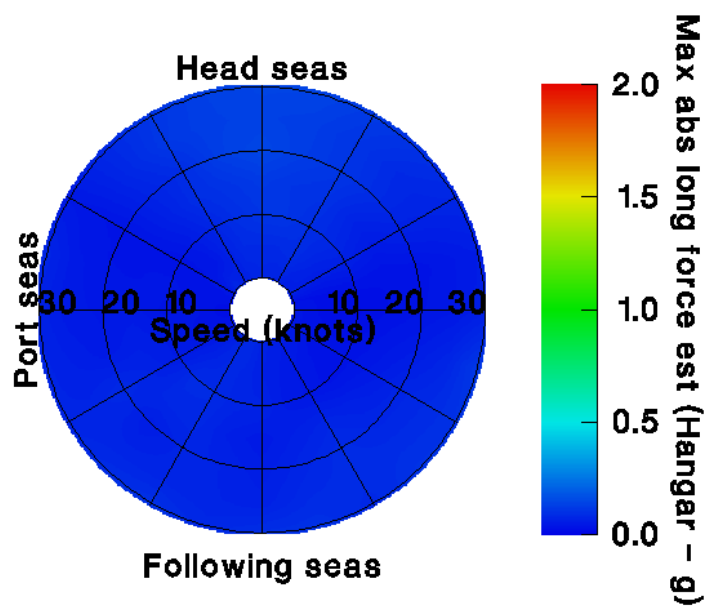


Figure E.10: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex F
Polar Plots of Maximum Absolute
Longitudinal Force Estimator at Hangar
Deck – JONSWAP Spectra (Coastal Waters)

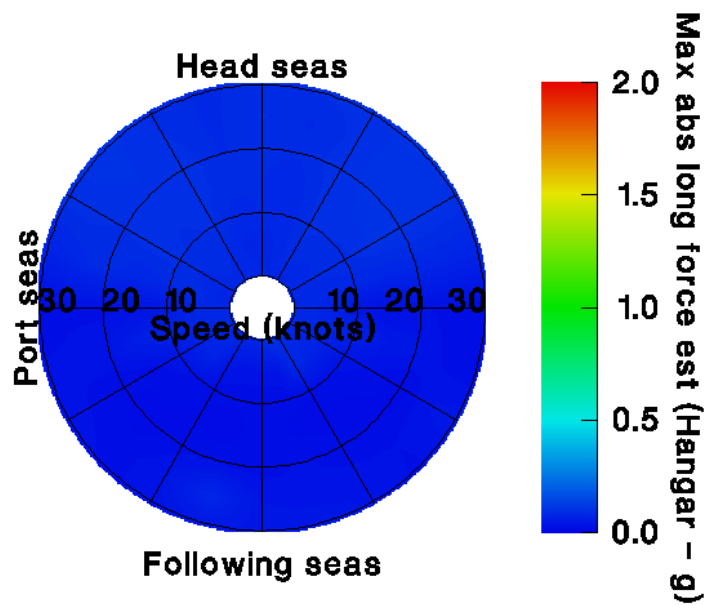


Figure F.1: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

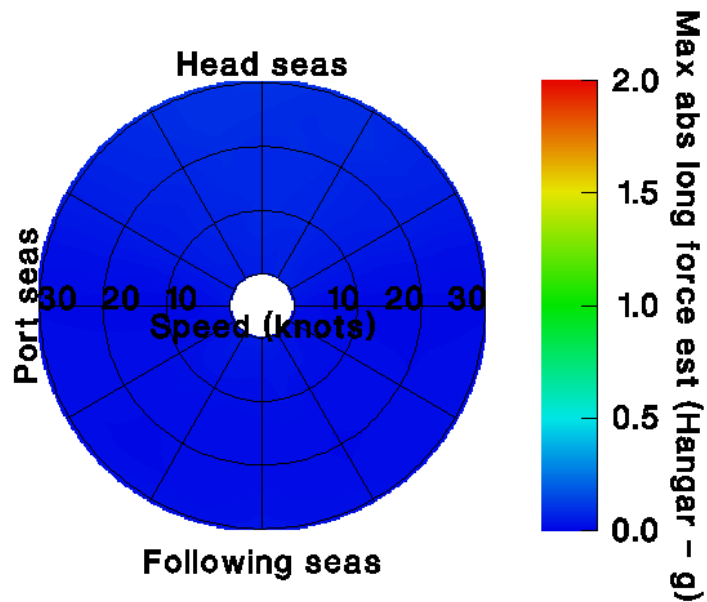


Figure F.2: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

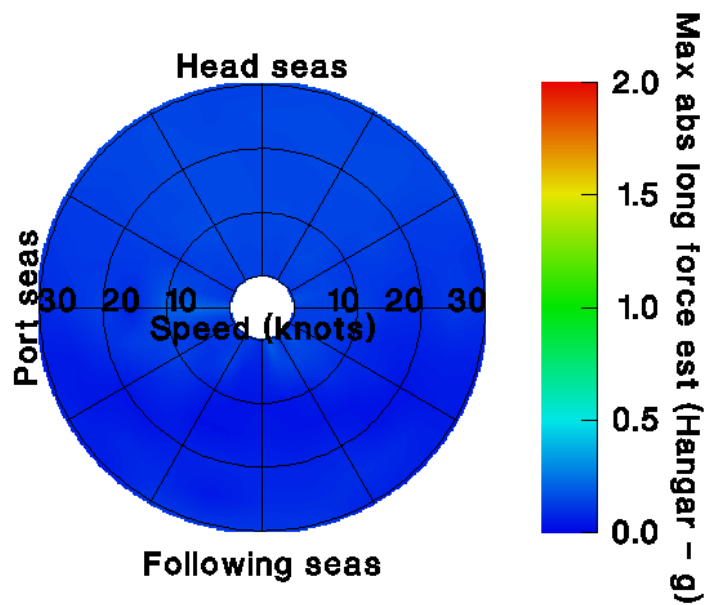


Figure F.3: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

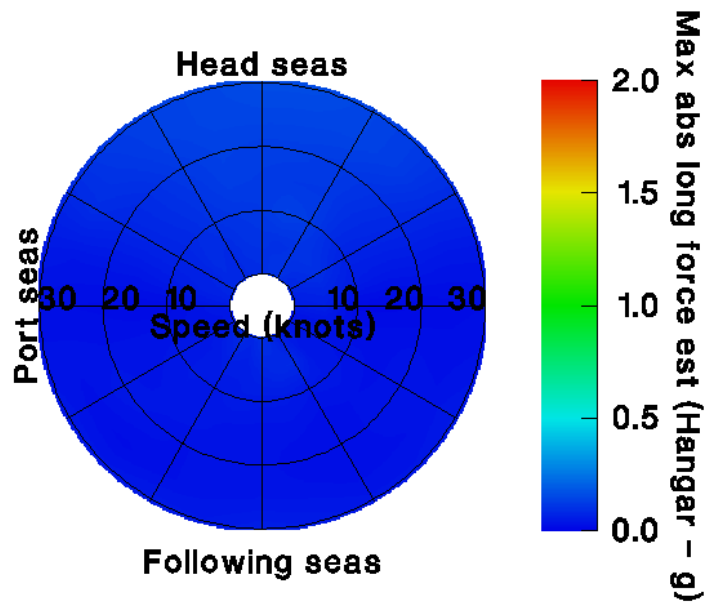


Figure F.4: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

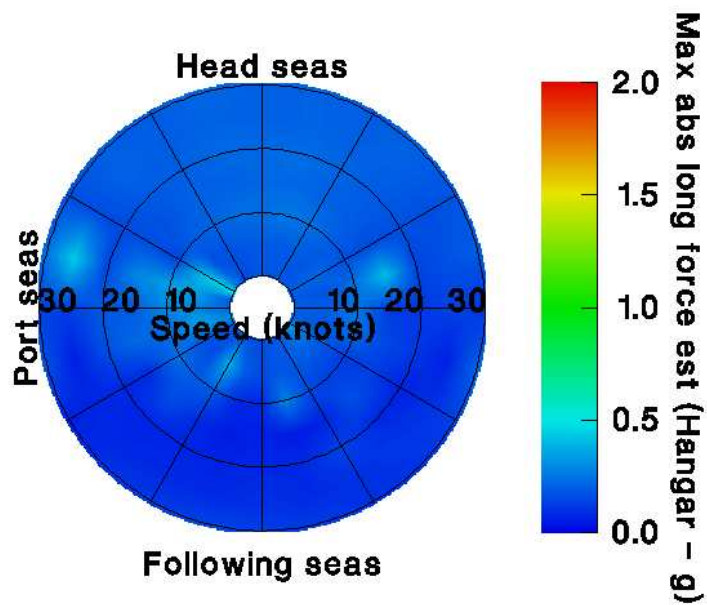


Figure F.5: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

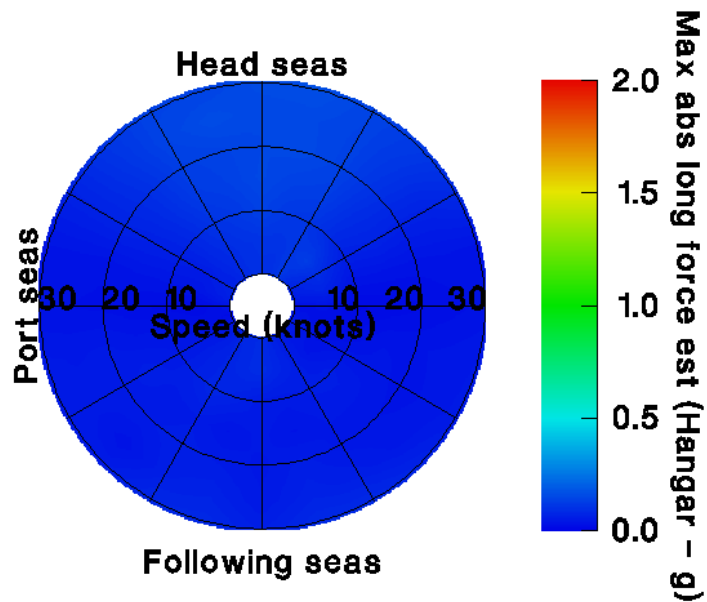


Figure F.6: Max. Abs. Long. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex G
Polar Plots of Maximum Absolute Lateral
Force Estimator at Hangar Deck –
Bretschneider Spectra (Open Ocean)

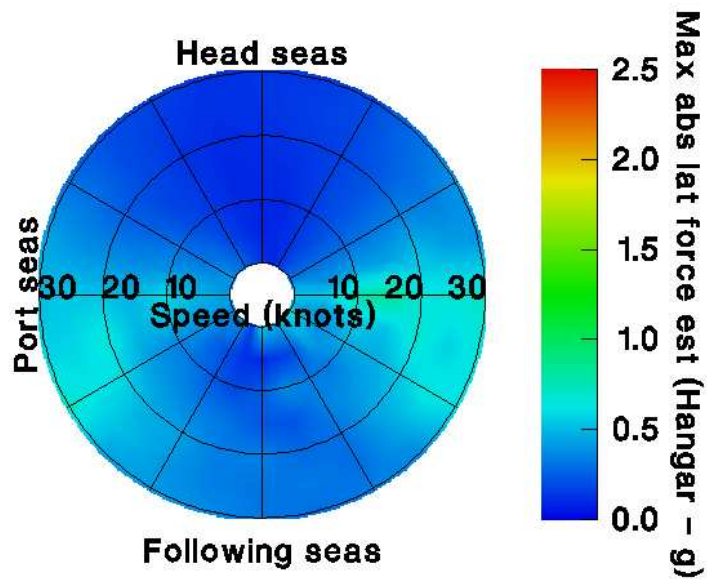


Figure G.1: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

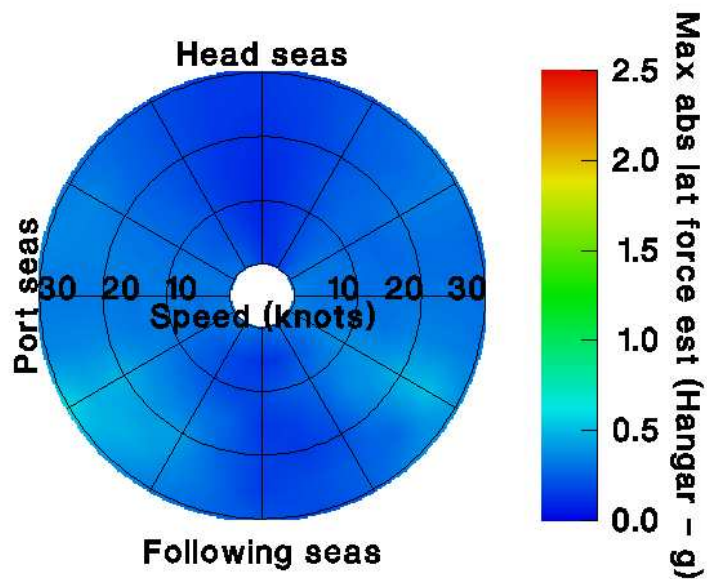


Figure G.2: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

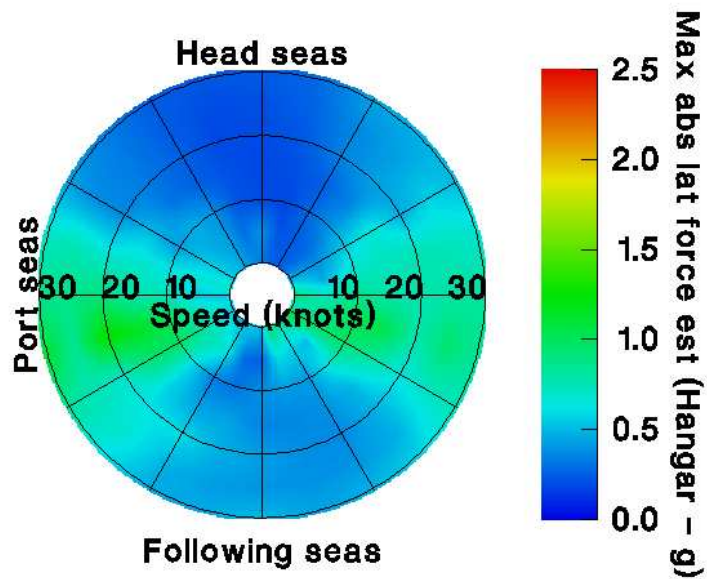


Figure G.3: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

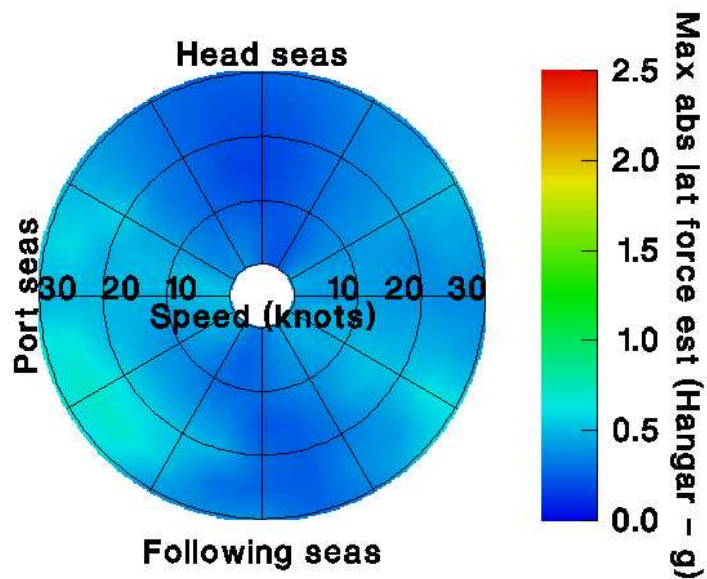


Figure G.4: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

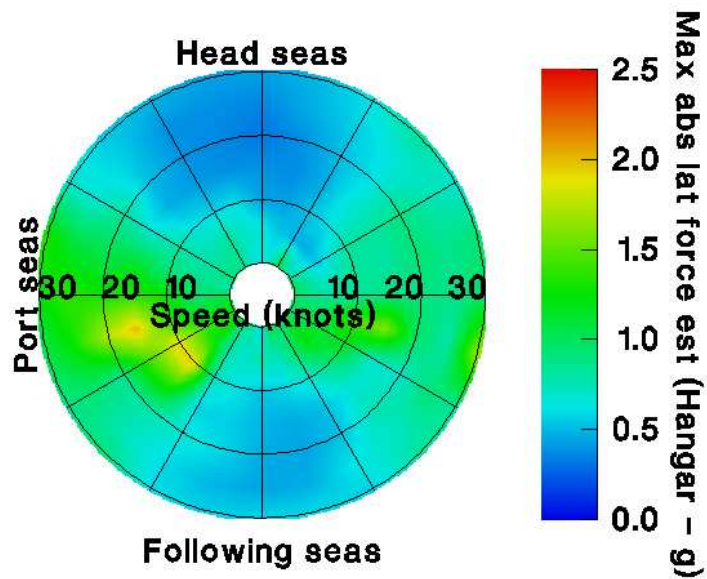


Figure G.5: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

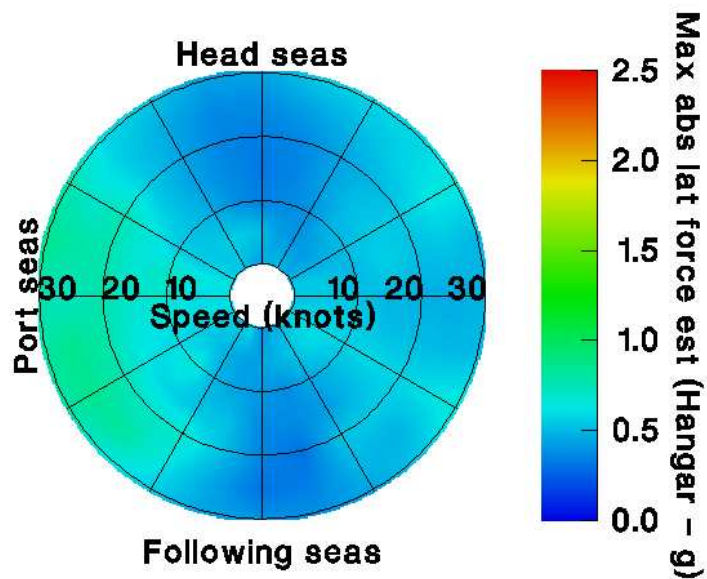


Figure G.6: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

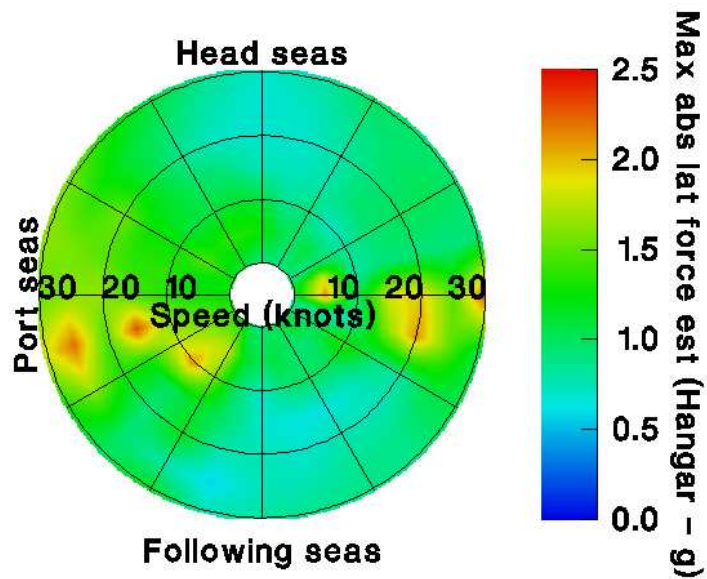


Figure G.7: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

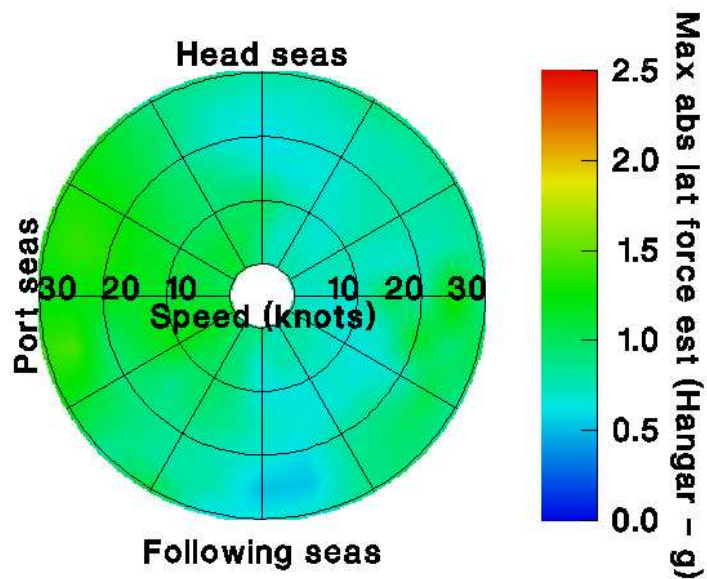


Figure G.8: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

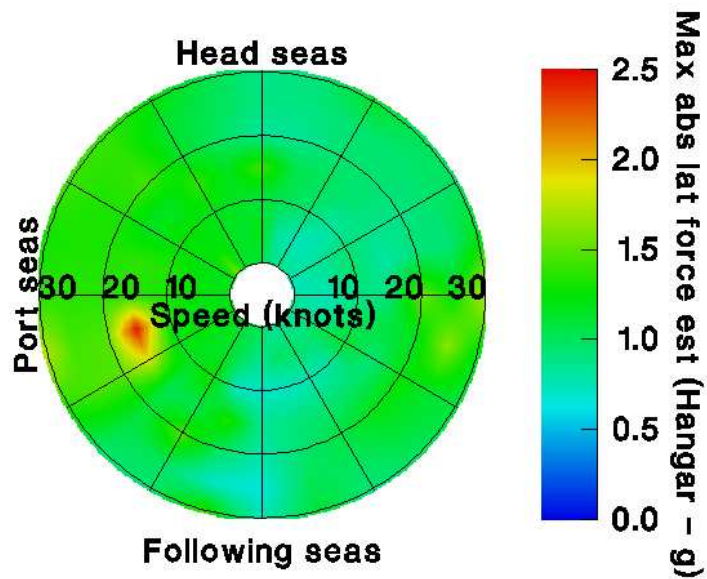


Figure G.9: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

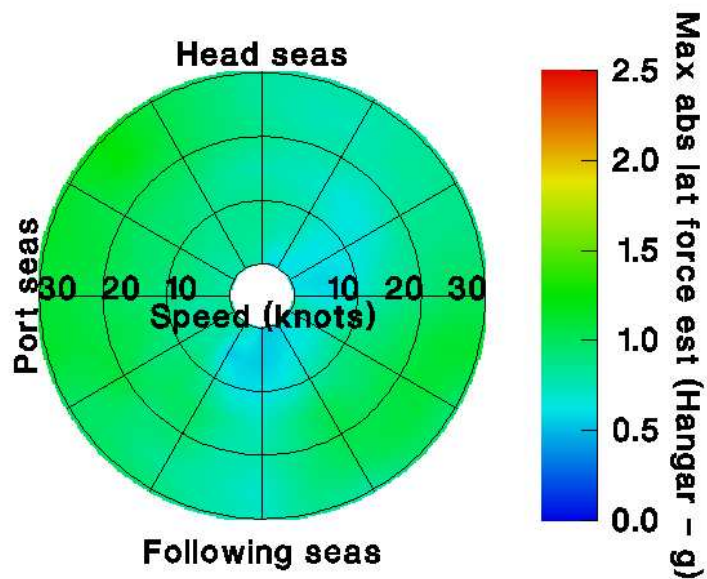


Figure G.10: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex H

Polar Plots of Maximum Absolute Lateral Force Estimator at Hangar Deck – JONSWAP Spectra (Coastal Waters)

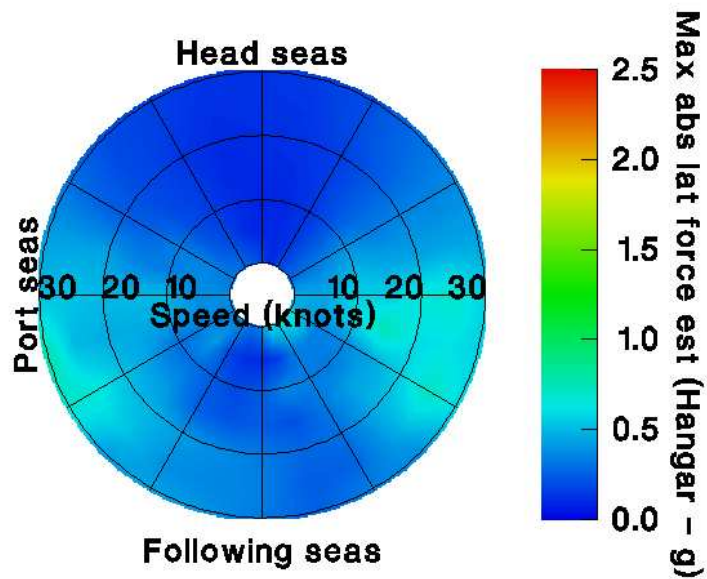


Figure H.1: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

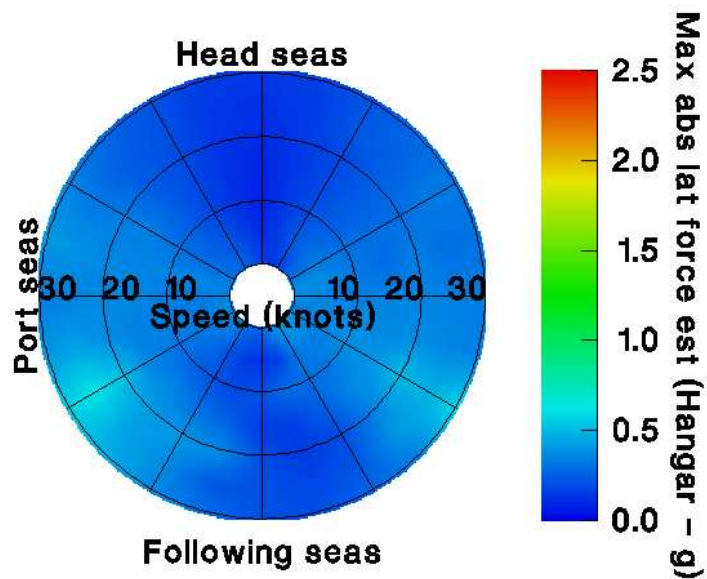


Figure H.2: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

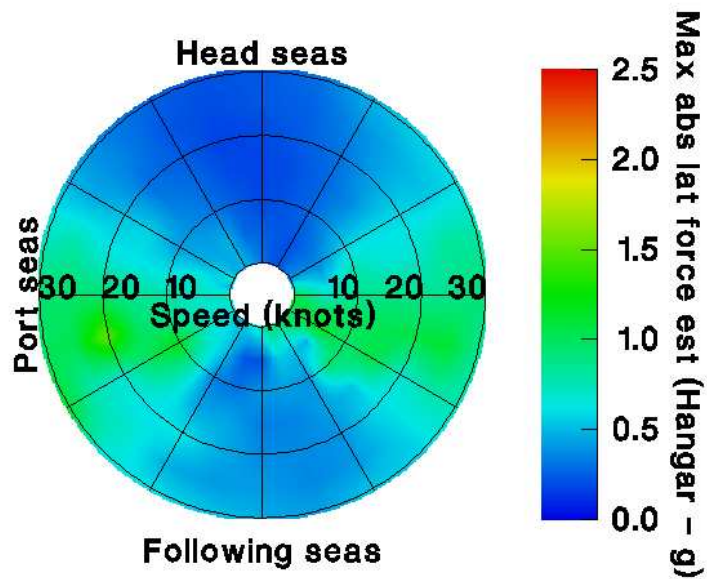


Figure H.3: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

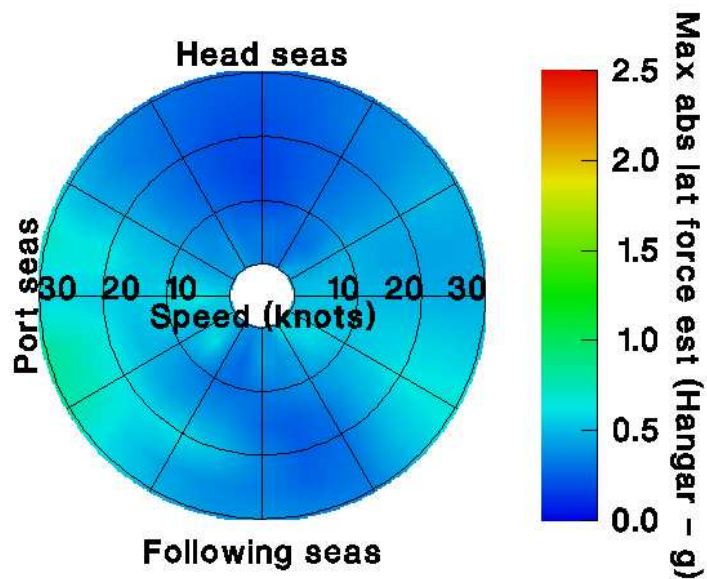


Figure H.4: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

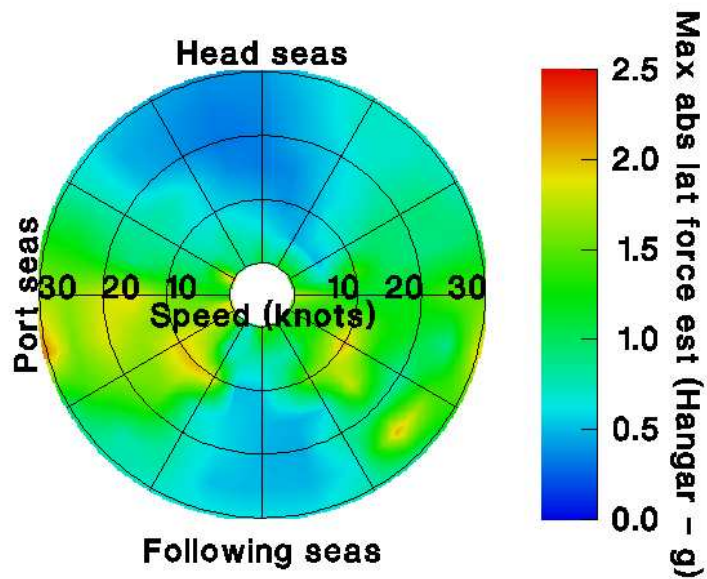


Figure H.5: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

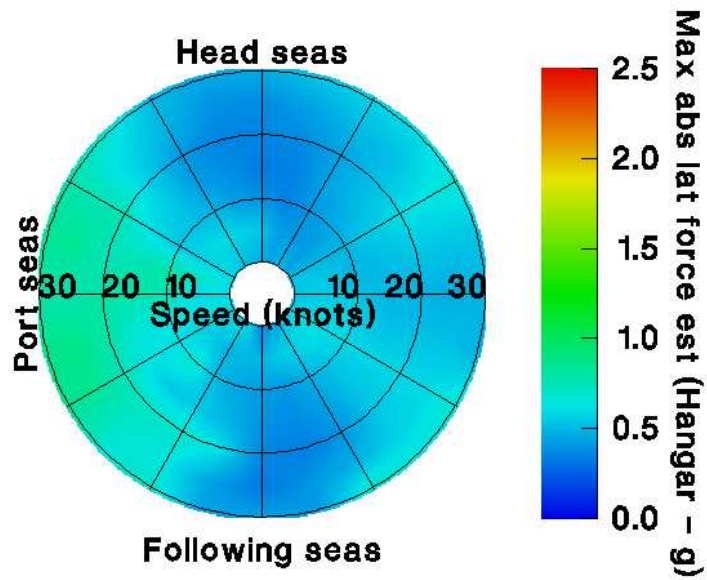


Figure H.6: Max. Abs. Lat. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex I
Polar Plots of Maximum Absolute Vertical
Force Estimator at Hangar Deck –
Bretschneider Spectra (Open Ocean)

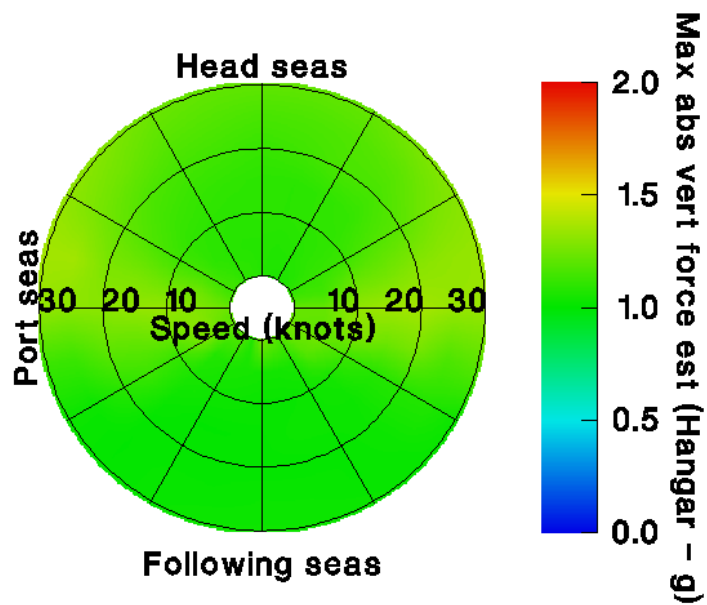


Figure I.1: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

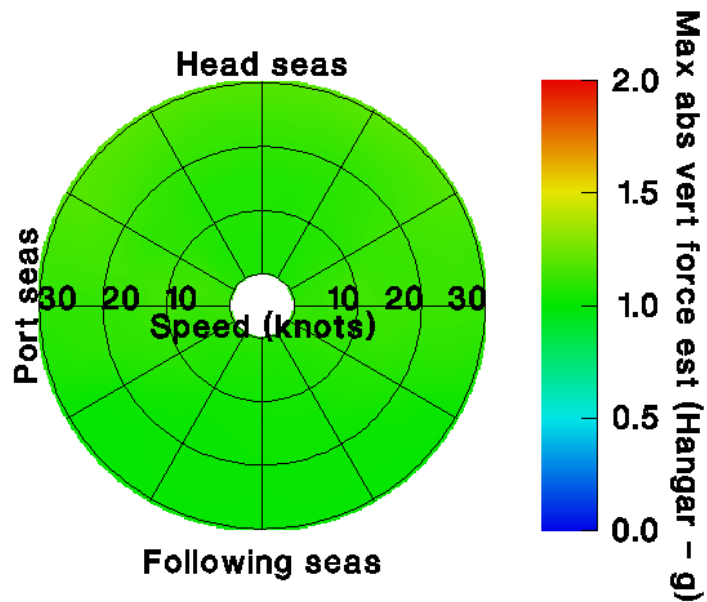


Figure I.2: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

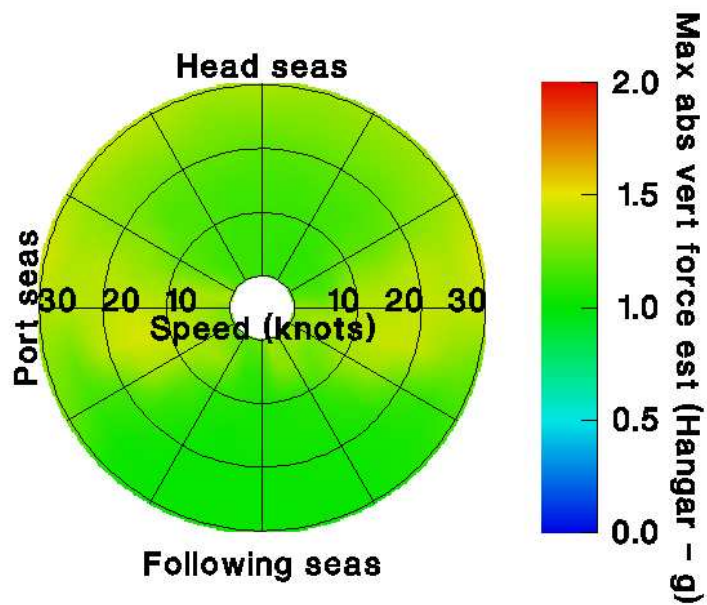


Figure I.3: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

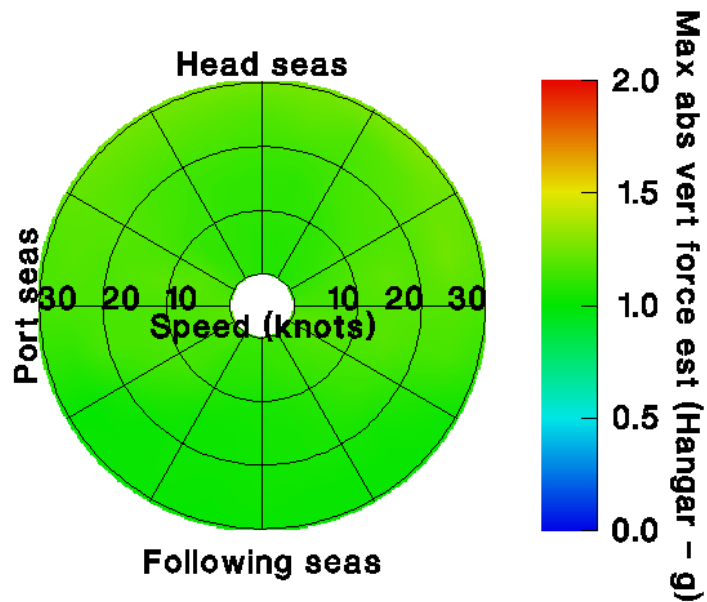


Figure I.4: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

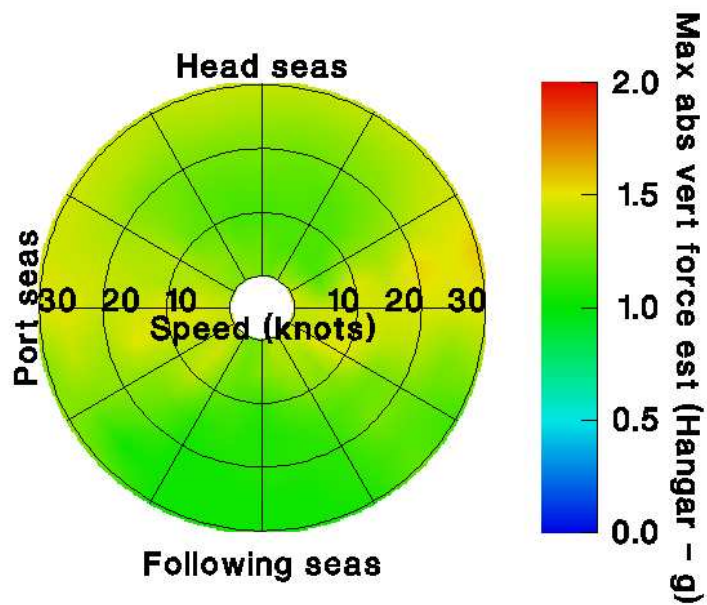


Figure I.5: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

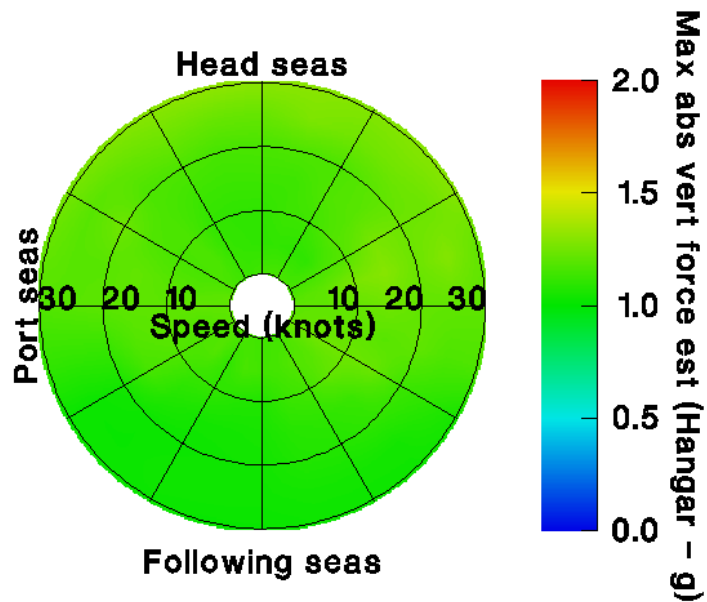


Figure I.6: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

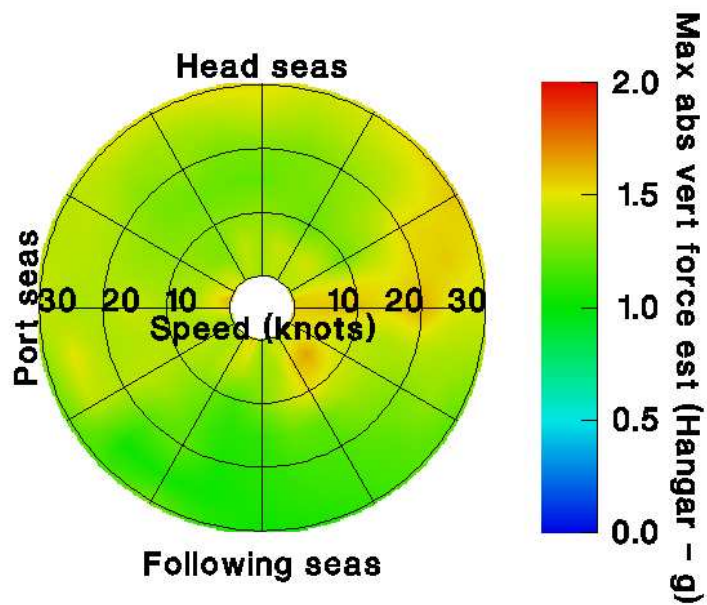


Figure 1.7: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

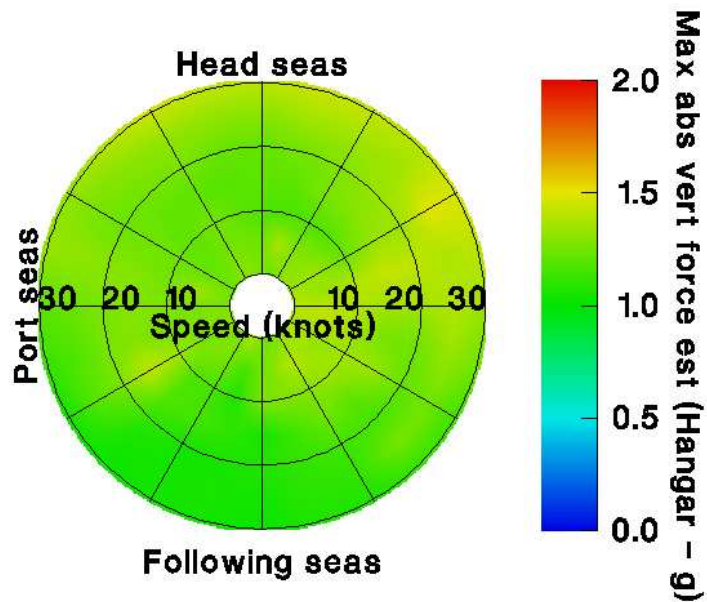


Figure 1.8: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

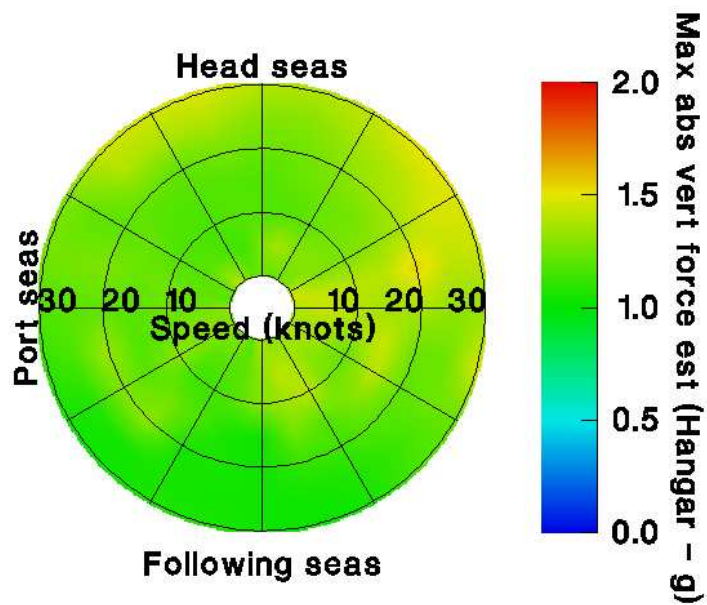


Figure I.9: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

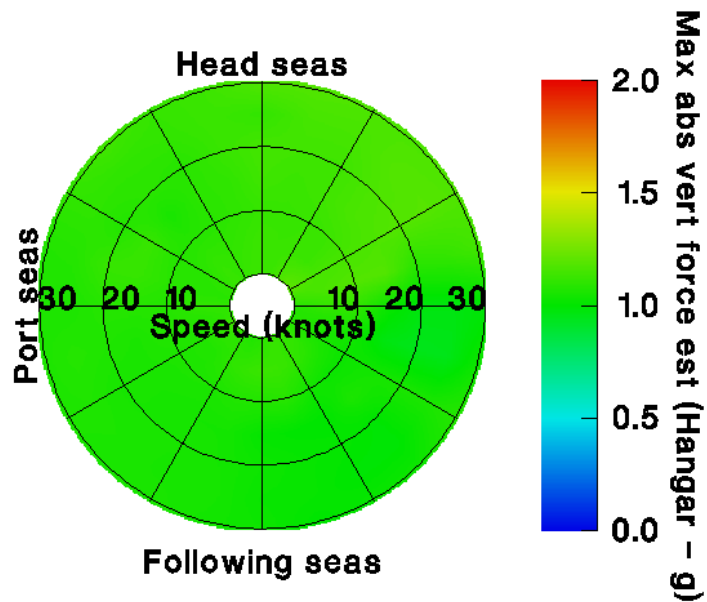


Figure I.10: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex J
Polar Plots of Maximum Absolute Vertical
Force Estimator at Hangar Deck – JONSWAP
Spectra (Coastal Waters)

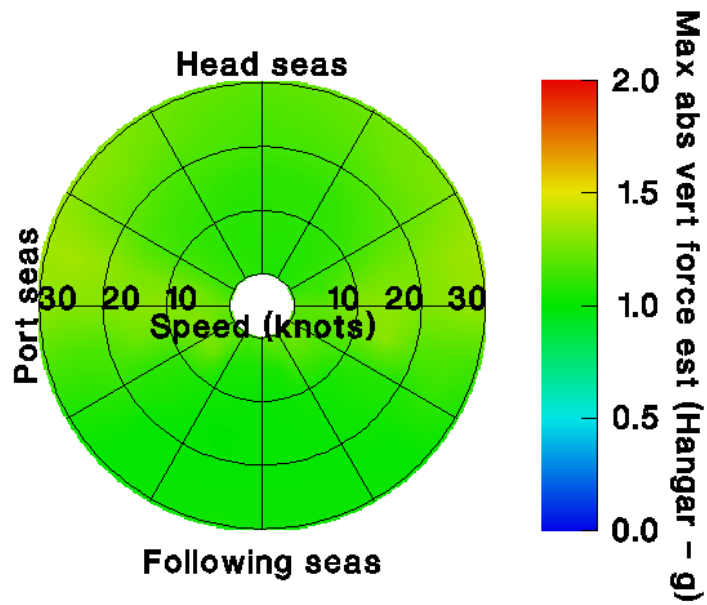


Figure J.1: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

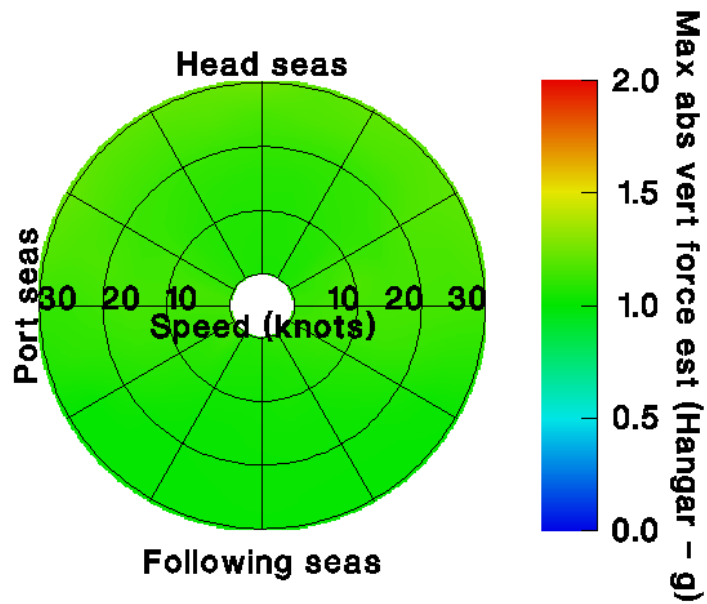


Figure J.2: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

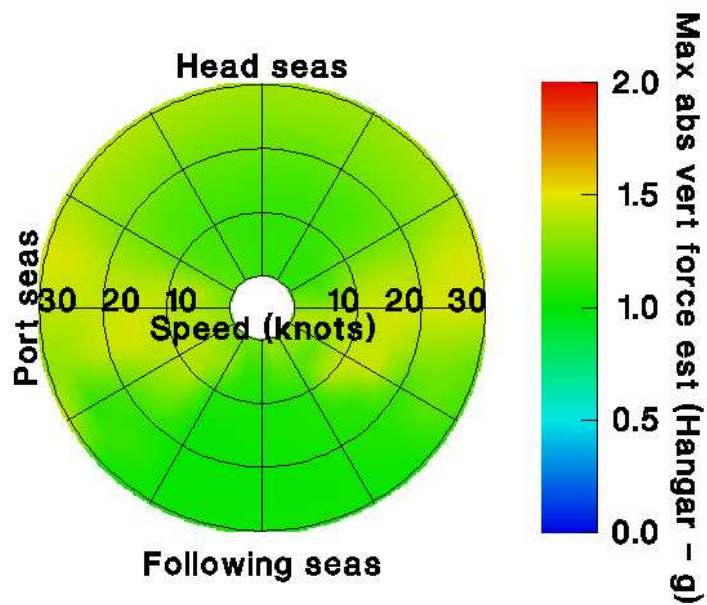


Figure J.3: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

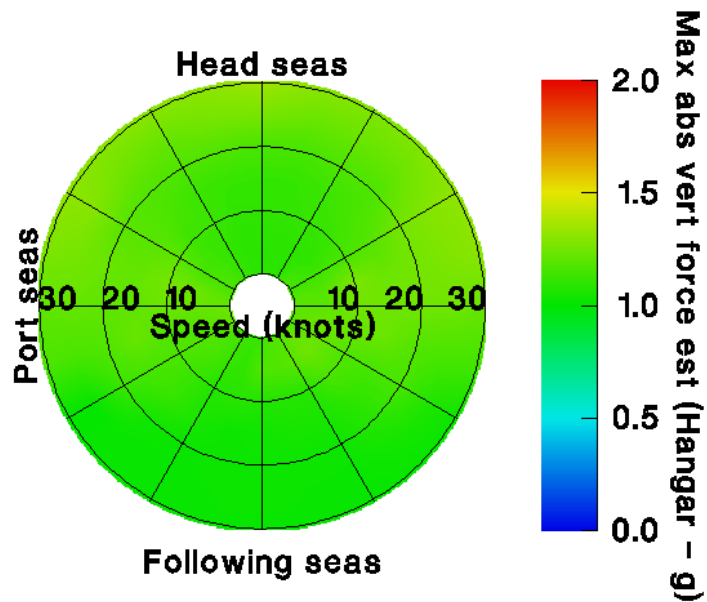


Figure J.4: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

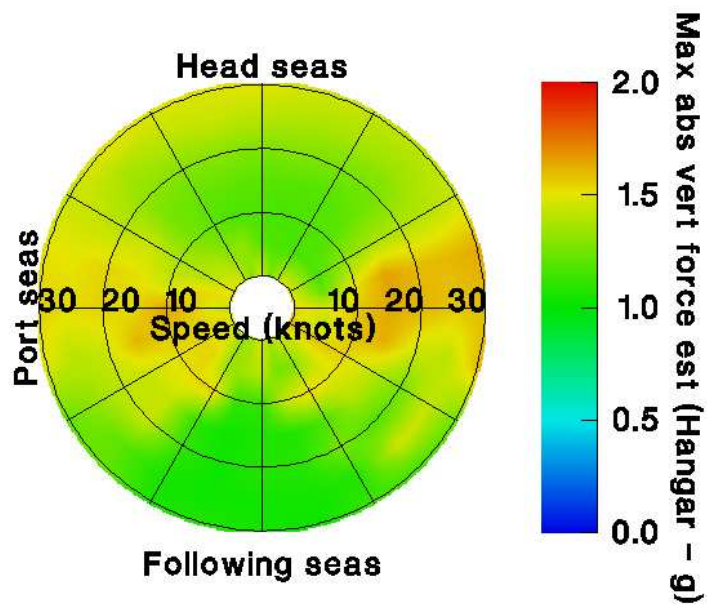


Figure J.5: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

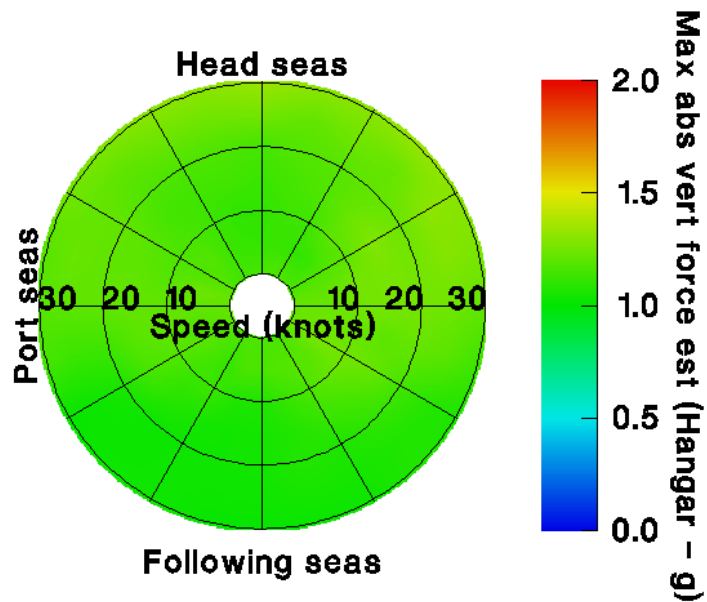


Figure J.6: Max. Abs. Vert. Force Est. at the Hangar Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex K
Polar Plots of Maximum Absolute
Longitudinal Force Estimator at Flight Deck
– Bretschneider Spectra (Open Ocean)

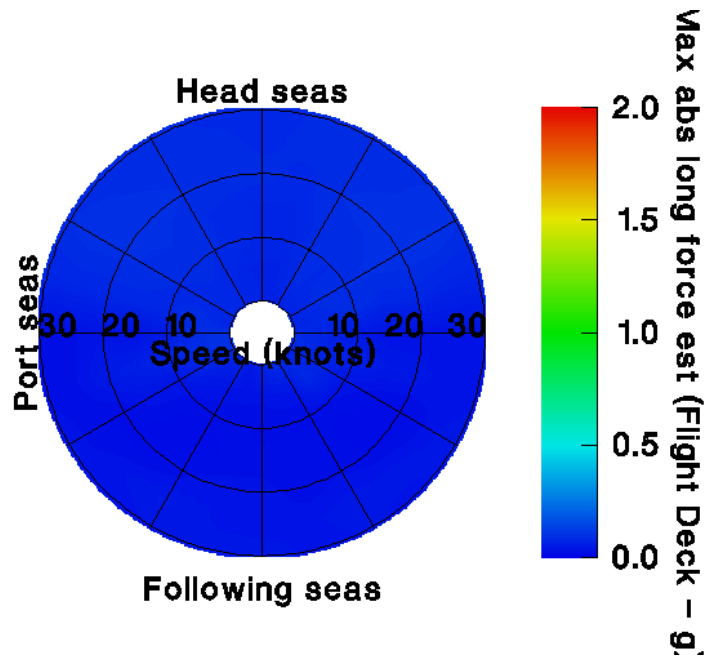


Figure K.1: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

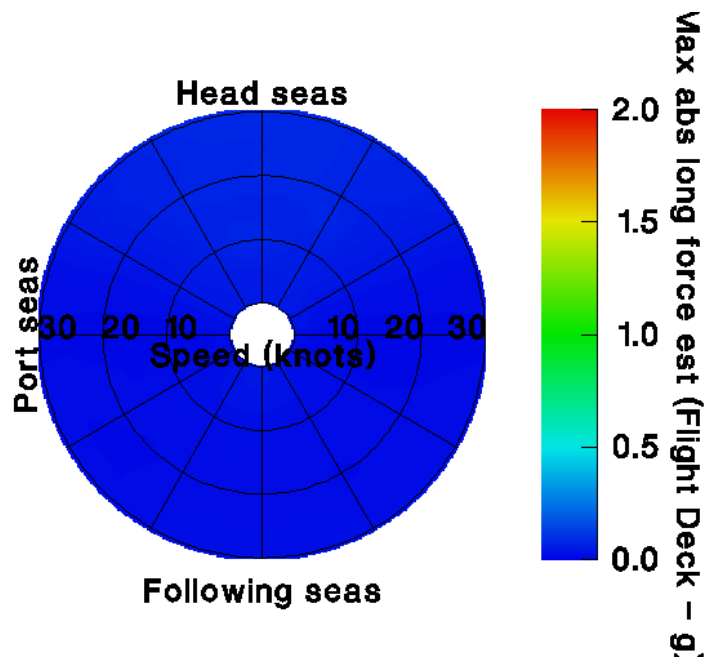


Figure K.2: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

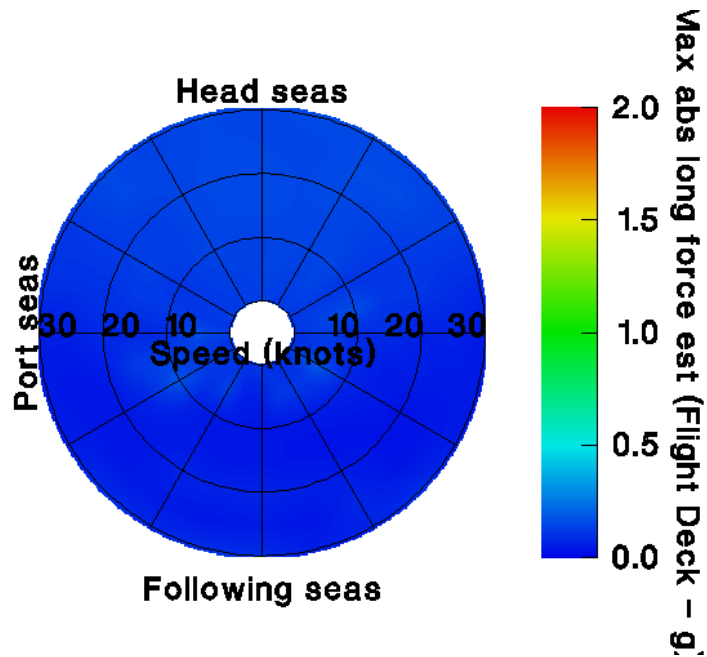


Figure K.3: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

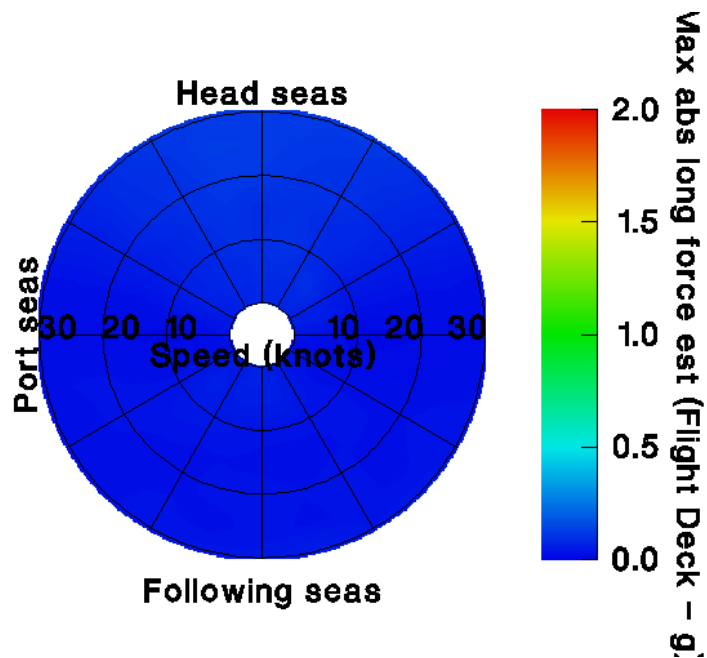


Figure K.4: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

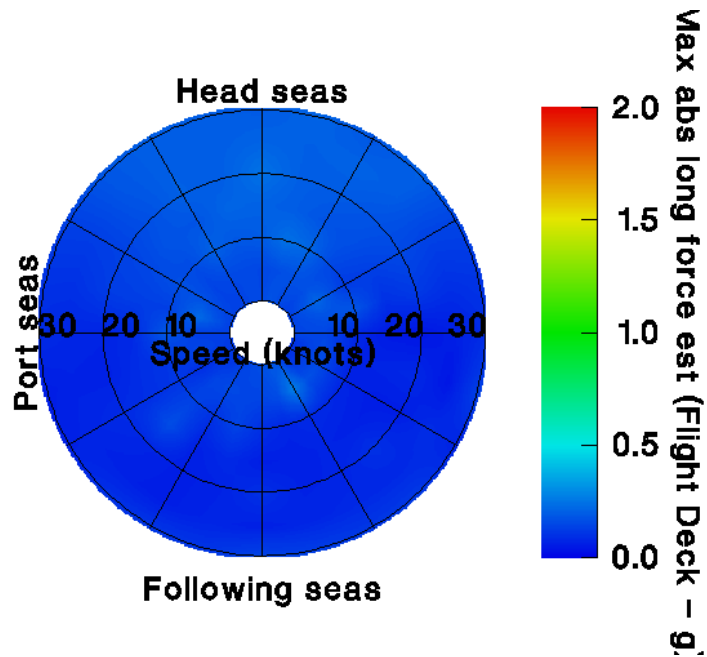


Figure K.5: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

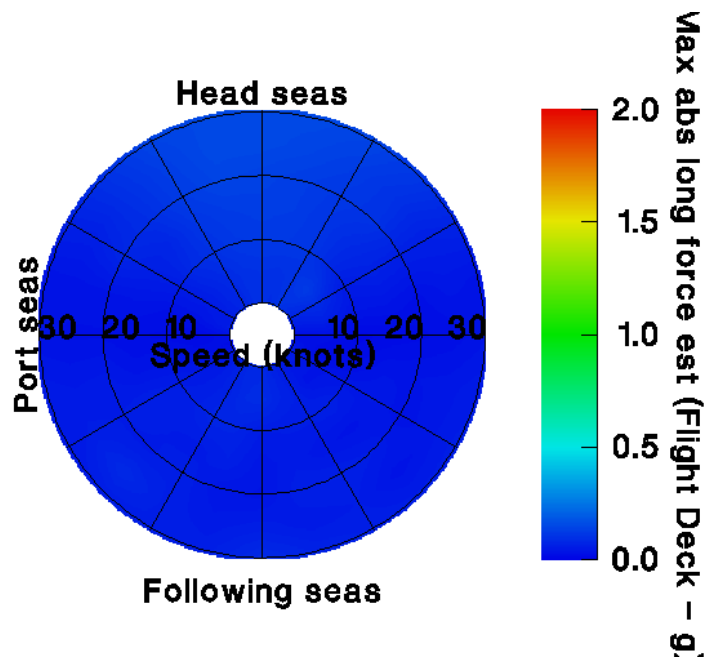


Figure K.6: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

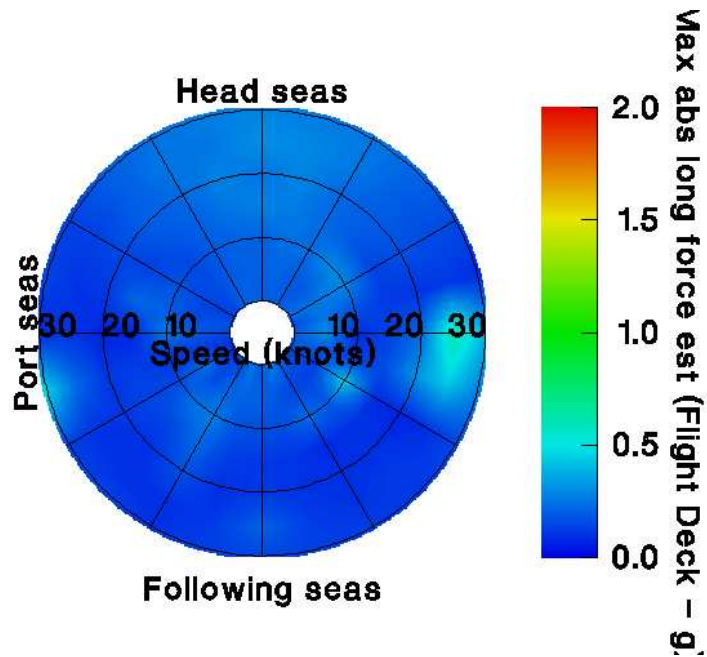


Figure K.7: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

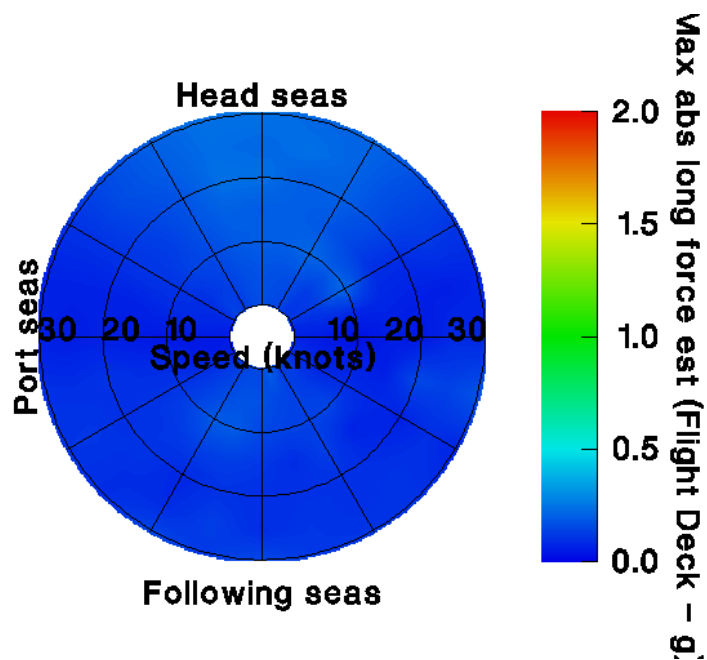


Figure K.8: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

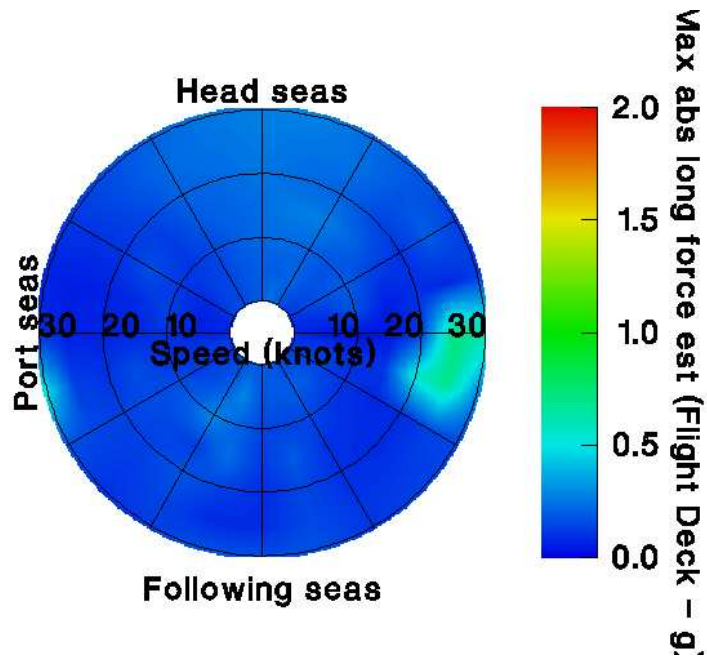


Figure K.9: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

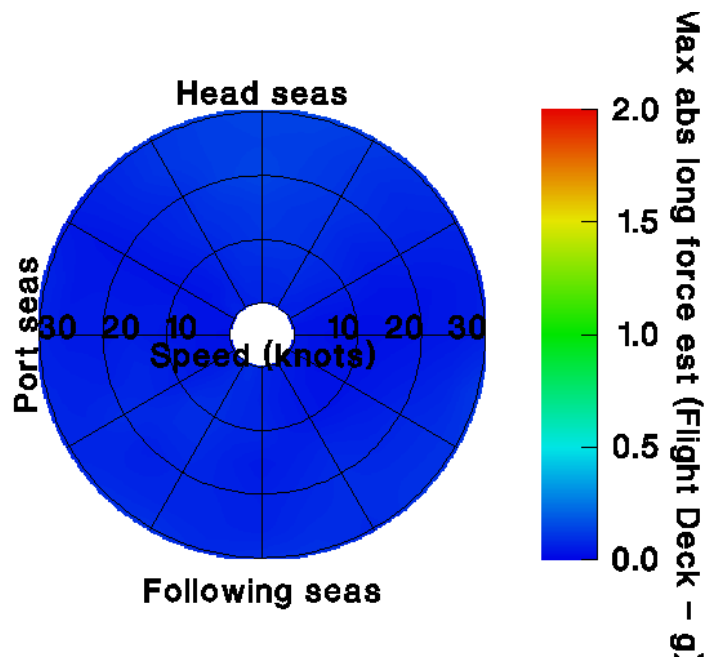


Figure K.10: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex L
Polar Plots of Maximum Absolute
Longitudinal Force Estimator at Flight Deck
– JONSWAP Spectra (Coastal Waters)

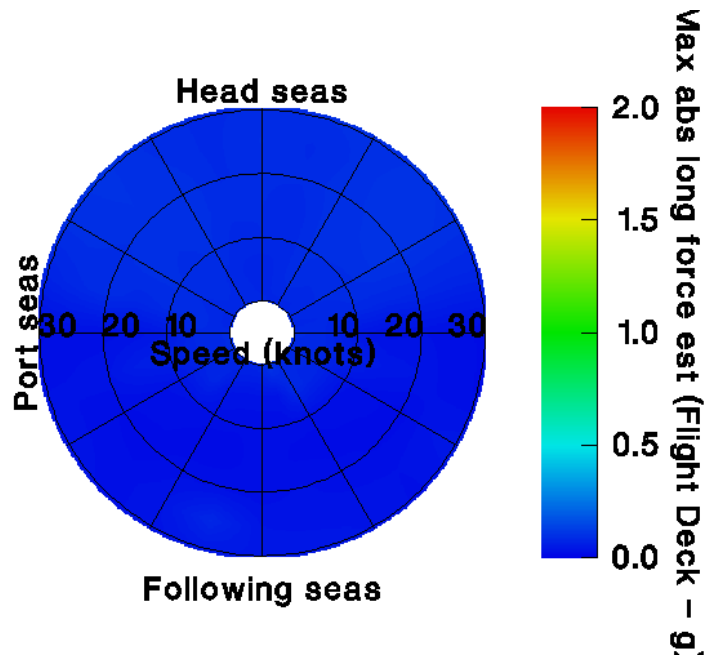


Figure L.1: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

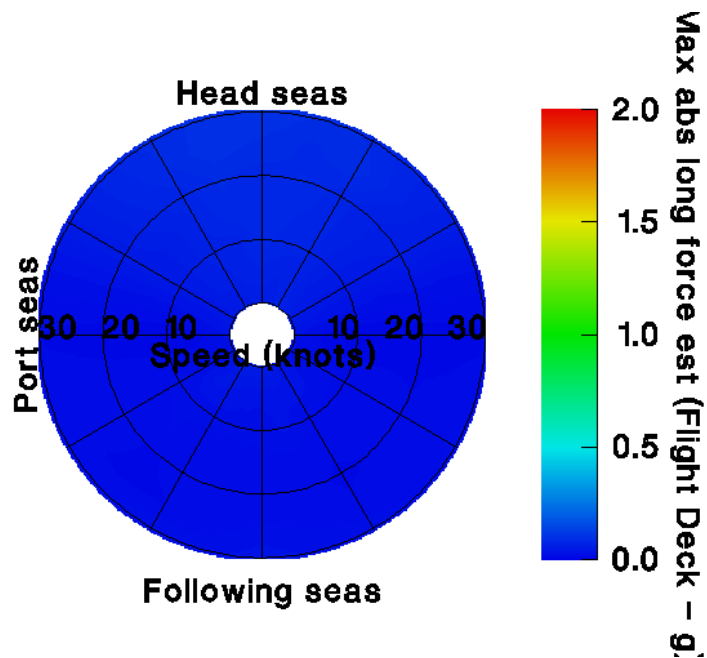


Figure L.2: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

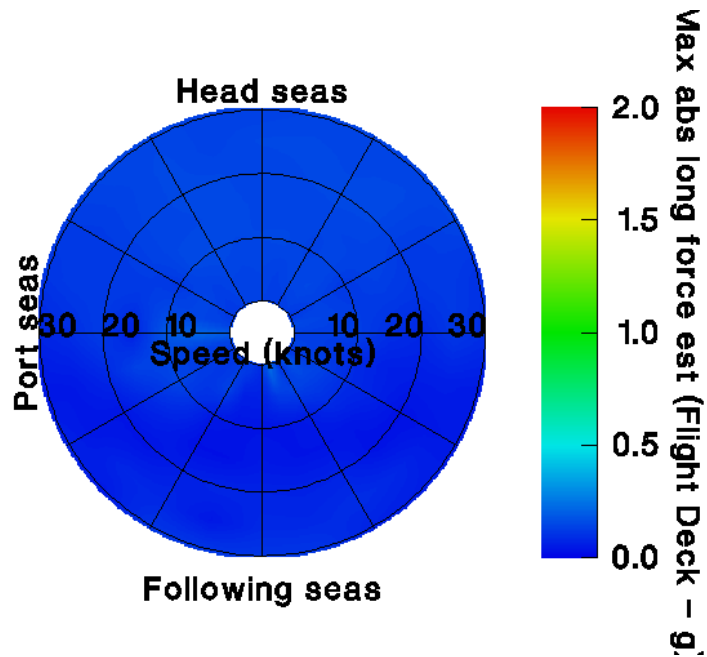


Figure L.3: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

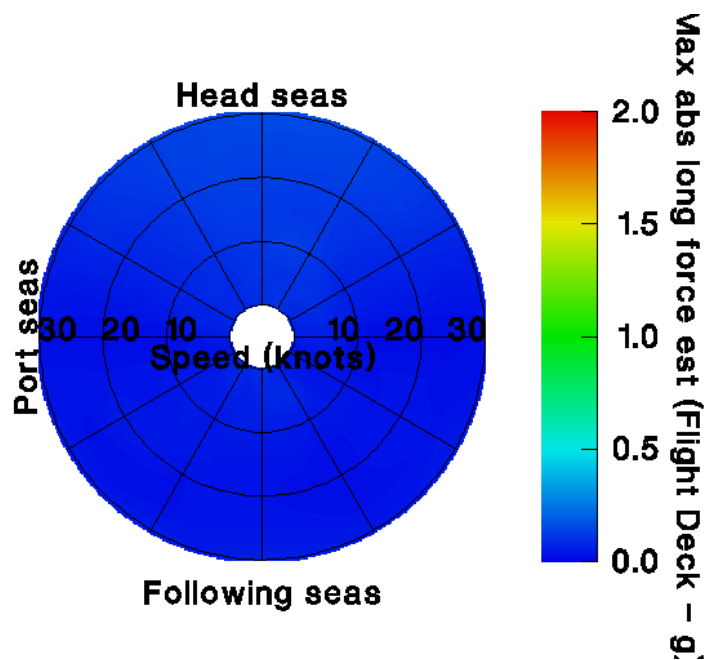


Figure L.4: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

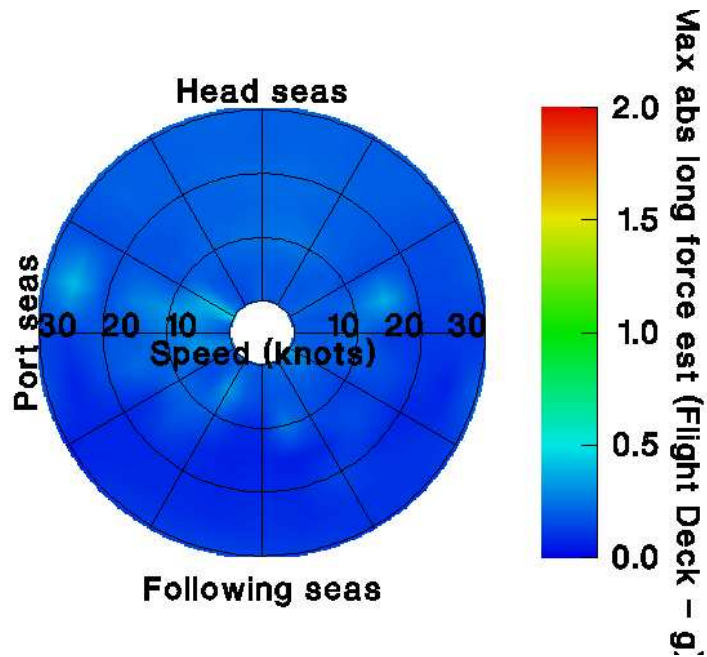


Figure L.5: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

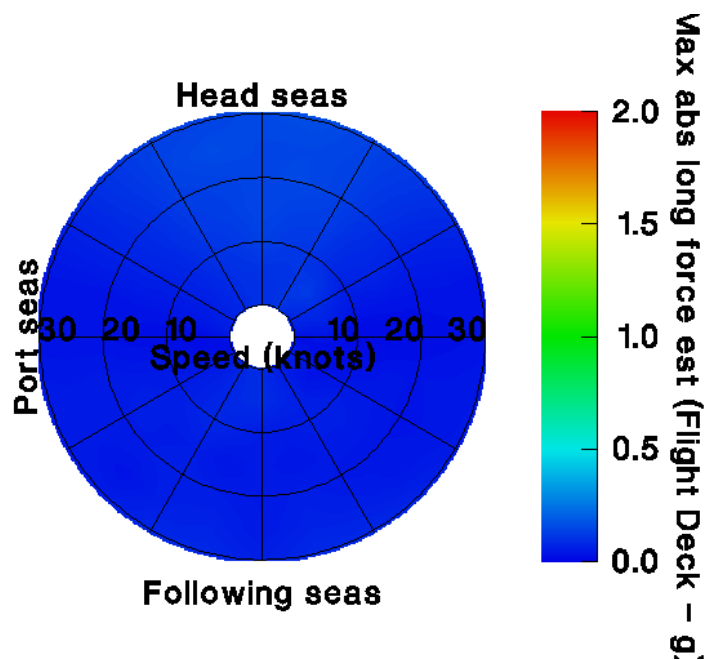


Figure L.6: Max. Abs. Long. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex M
Polar Plots of Maximum Absolute Lateral
Force Estimator at Flight Deck –
Bretschneider Spectra (Open Ocean)

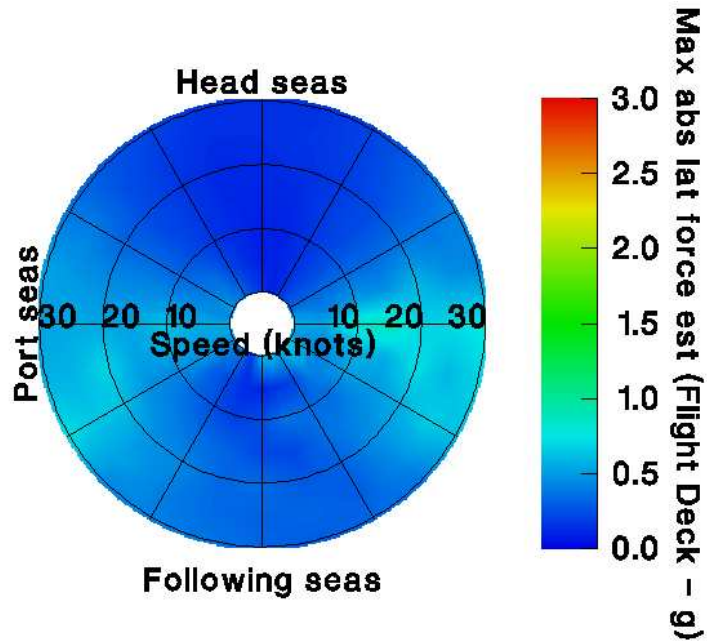


Figure M.1: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

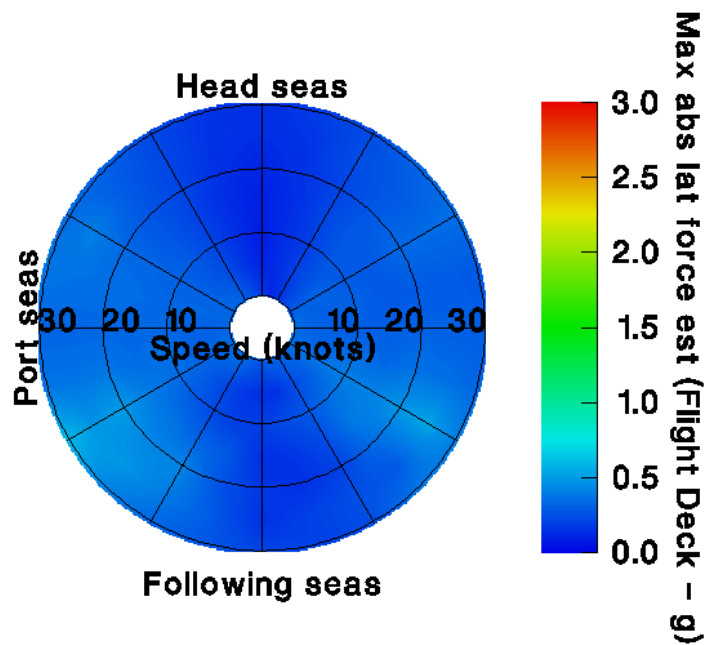


Figure M.2: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

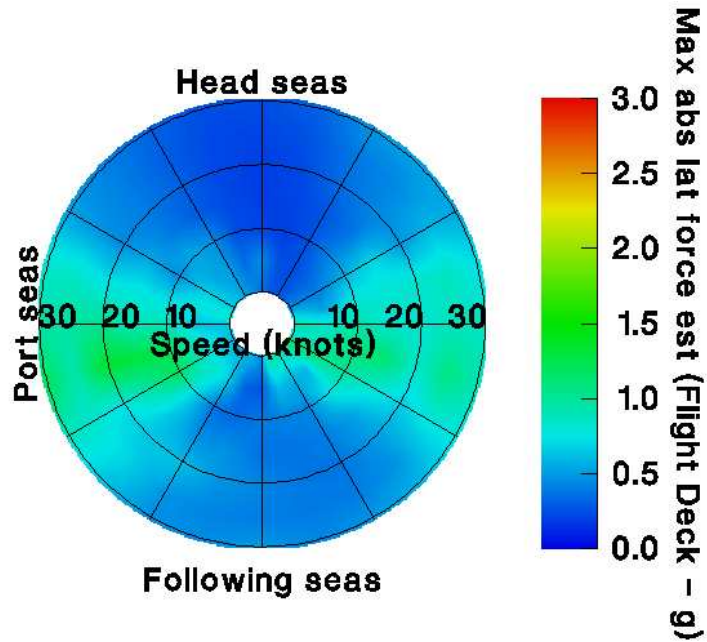


Figure M.3: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

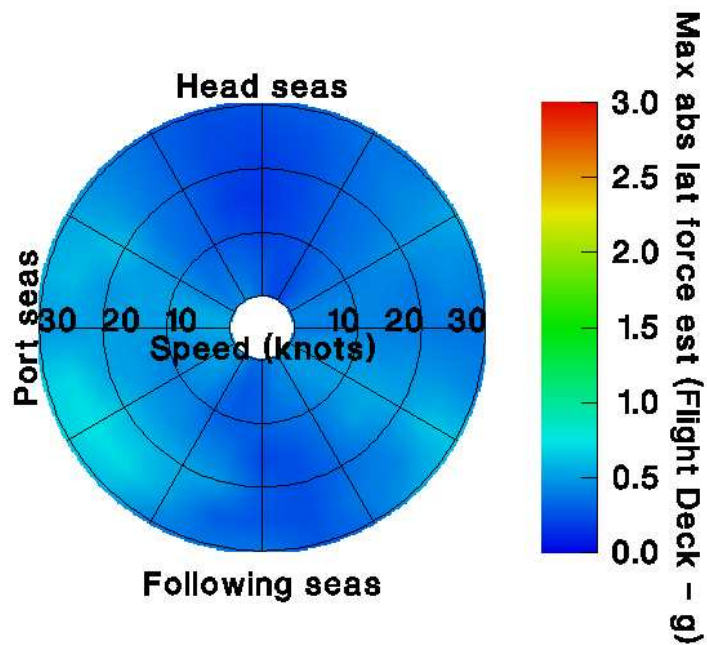


Figure M.4: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

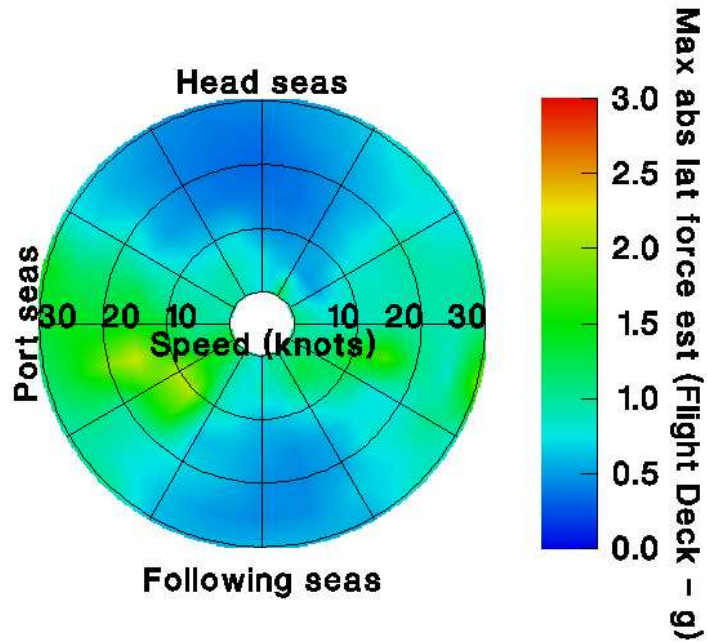


Figure M.5: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

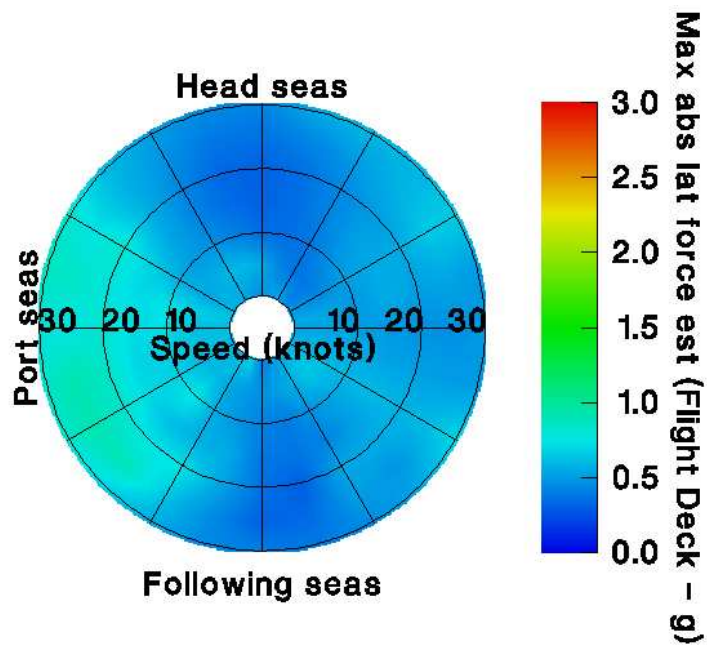


Figure M.6: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

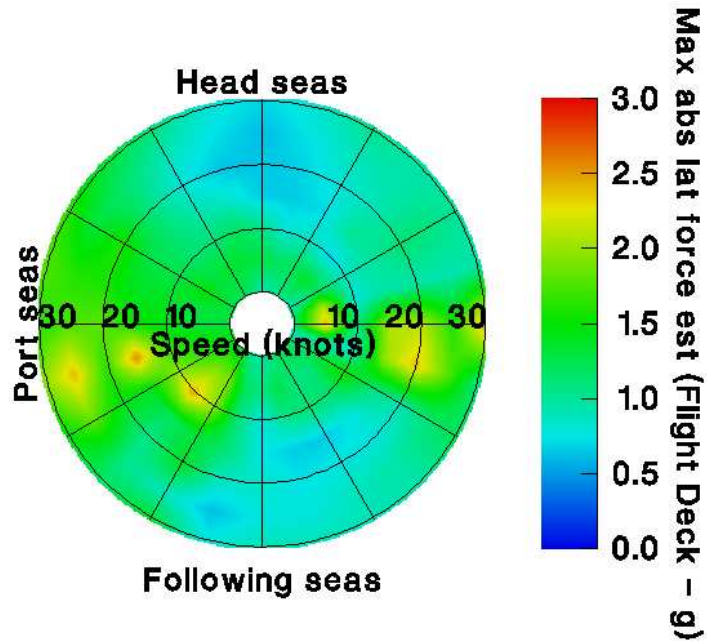


Figure M.7: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

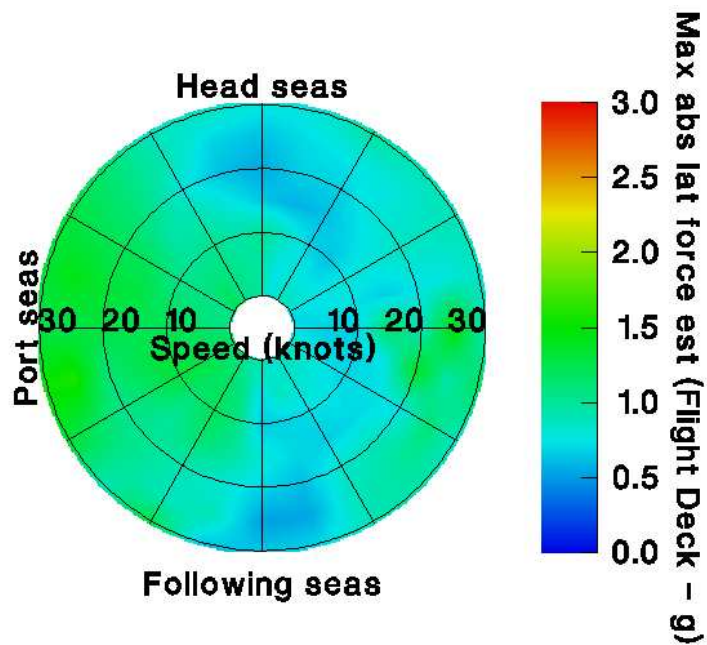


Figure M.8: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

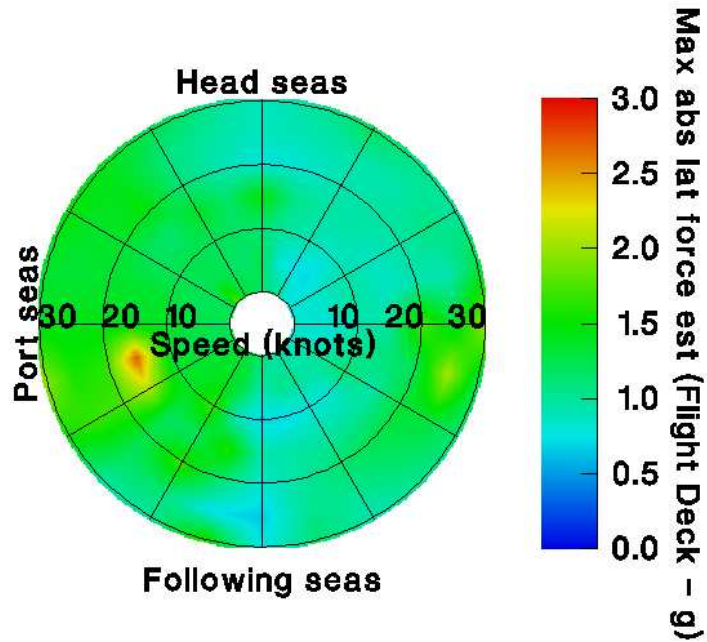


Figure M.9: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

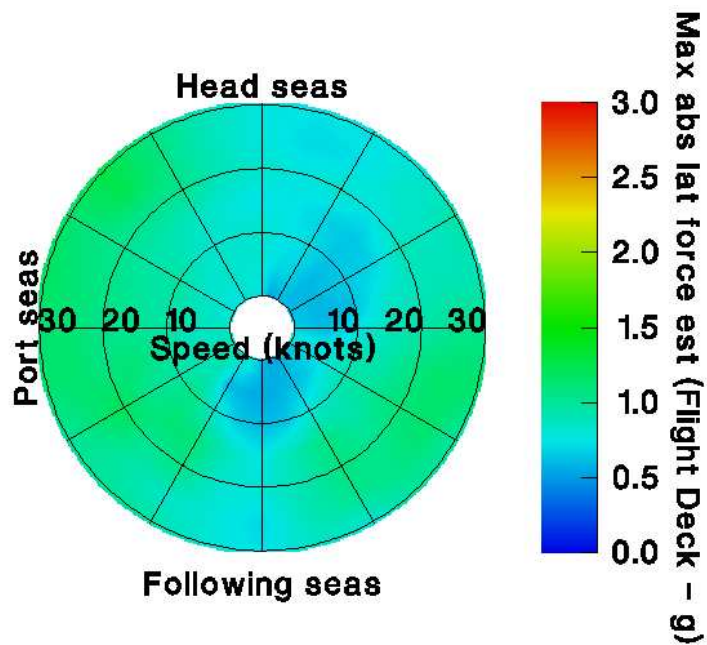


Figure M.10: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex N
Polar Plots of Maximum Absolute Lateral
Force Estimator at Flight Deck – JONSWAP
Spectra (Coastal Waters)

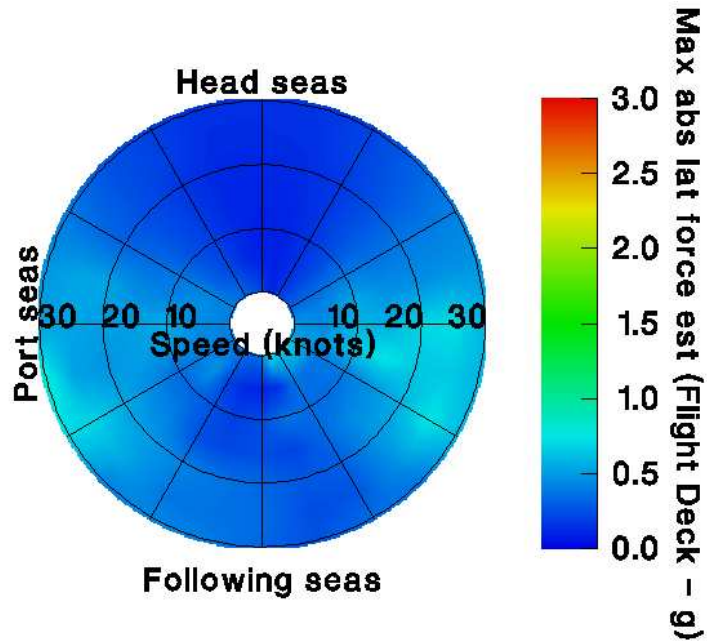


Figure N.1: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

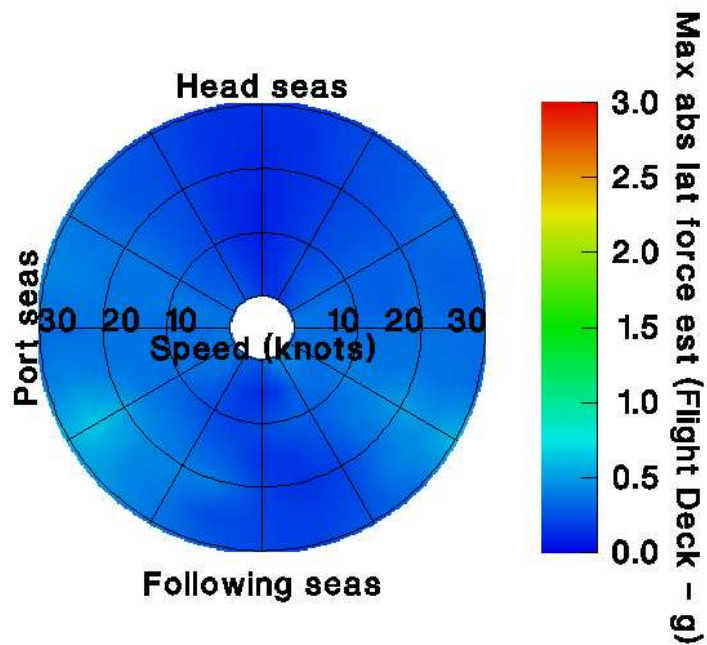


Figure N.2: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

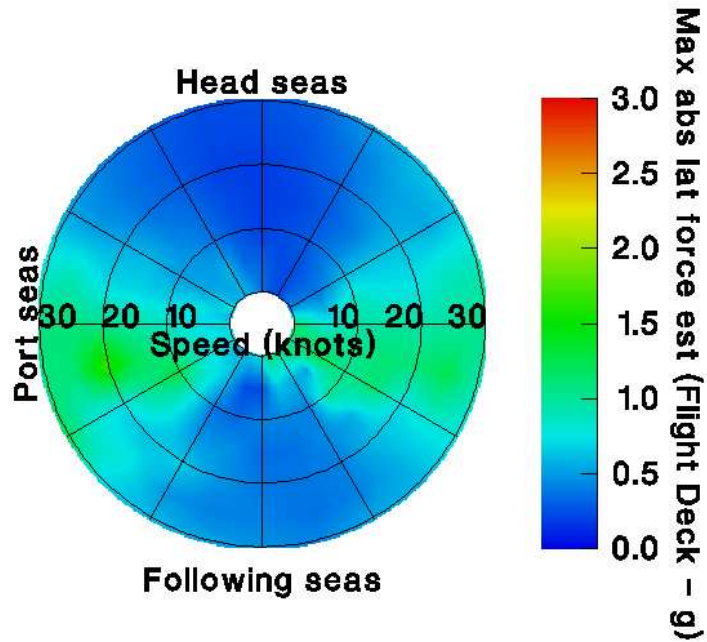


Figure N.3: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

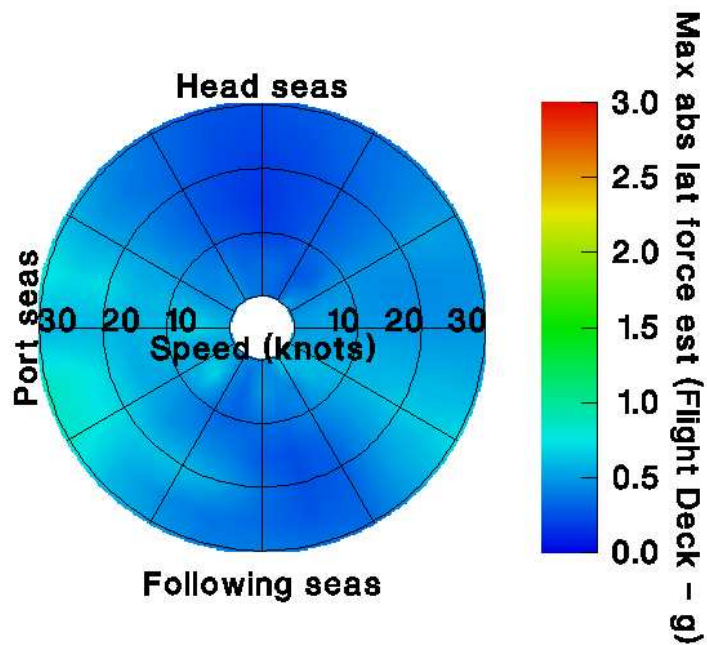


Figure N.4: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

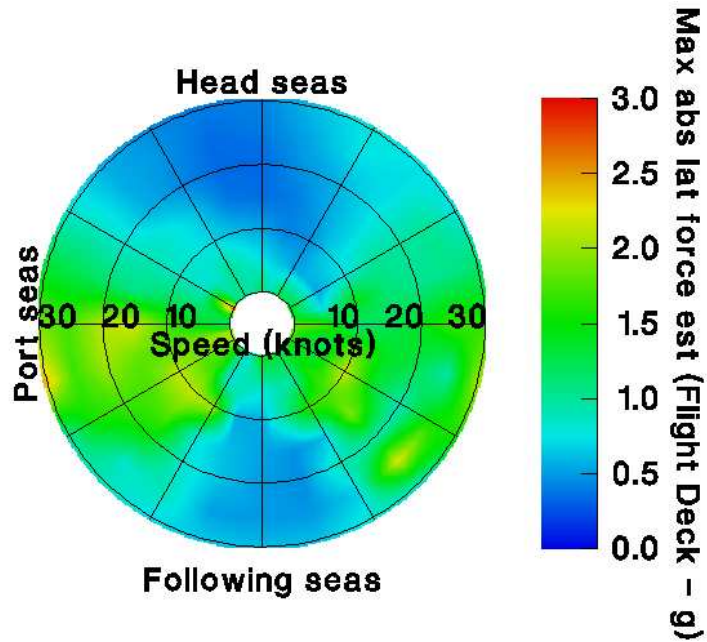


Figure N.5: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

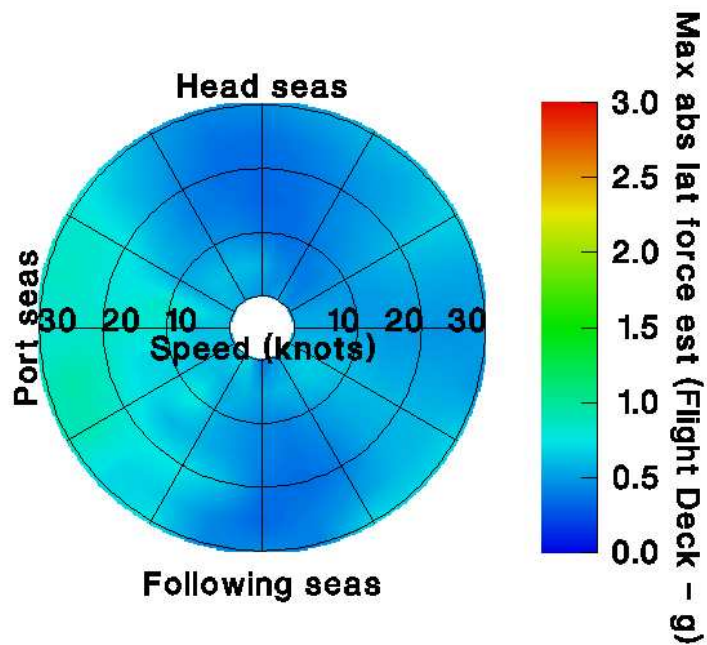


Figure N.6: Max. Abs. Lat. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex O

Polar Plots of Maximum Absolute Vertical Force Estimator at Flight Deck – Bretschneider Spectra (Open Ocean)

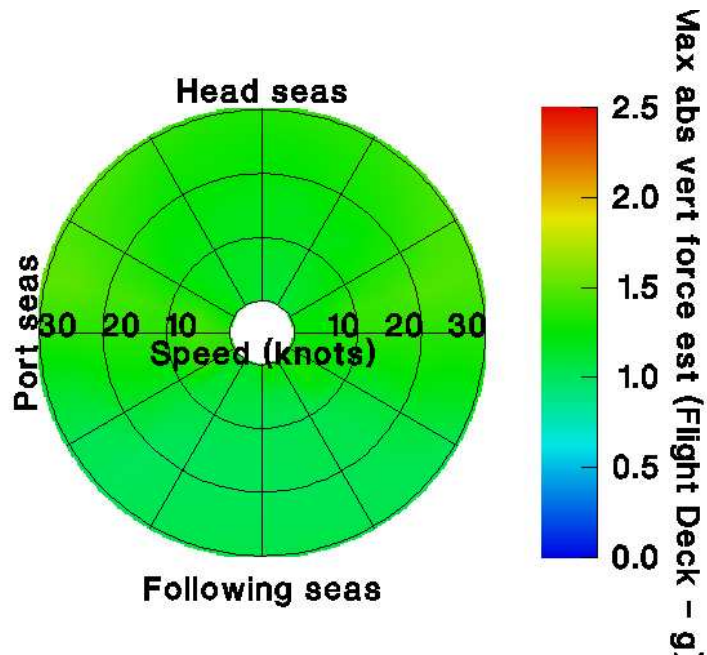


Figure O.1: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 8.3$ s.

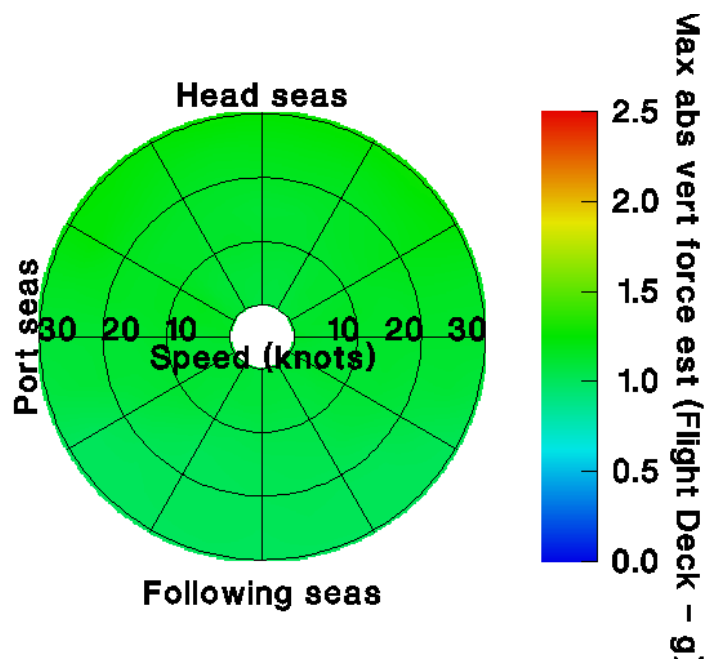


Figure O.2: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 4.0$ m and $T_P = 15.5$ s.

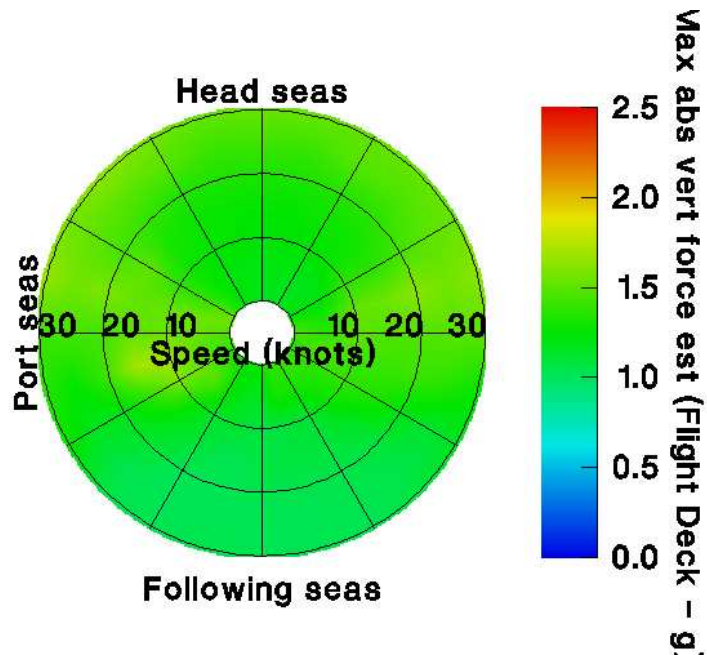


Figure O.3: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 10.3$ s.

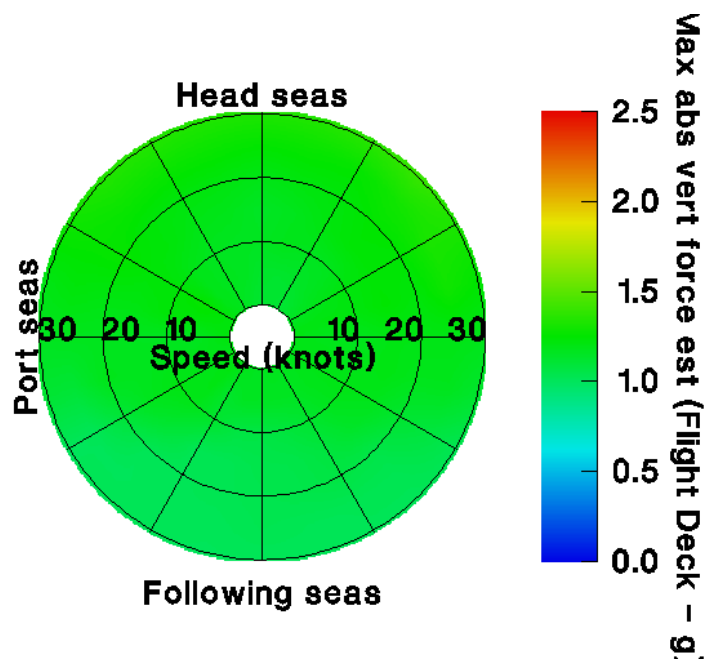


Figure O.4: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 6.0$ m and $T_P = 16.2$ s.

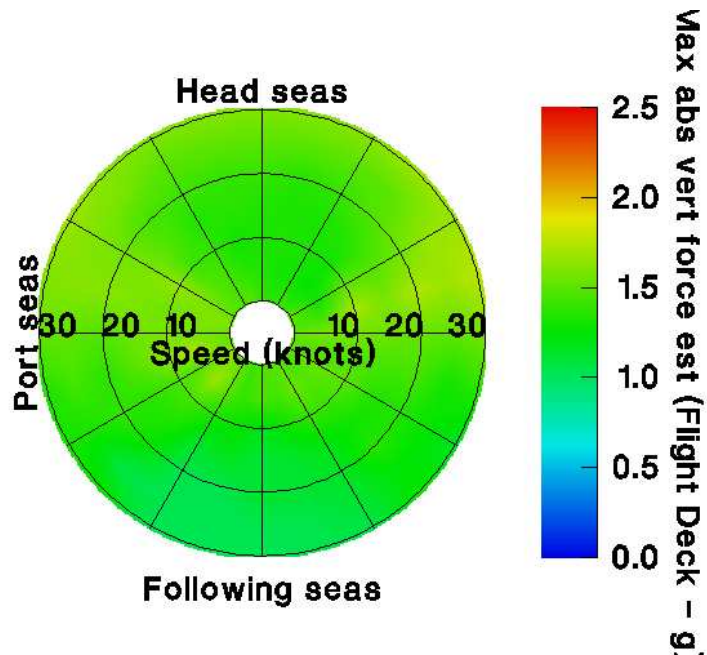


Figure O.5: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 13.1$ s.

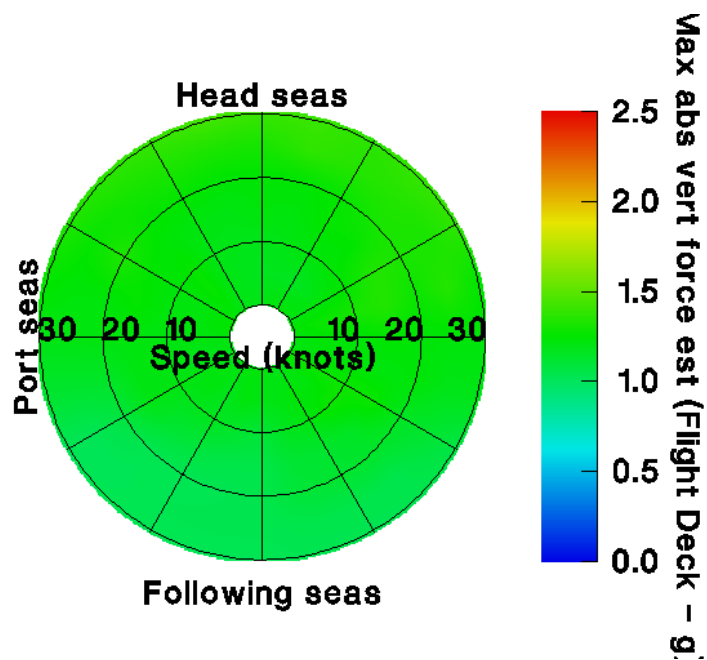


Figure O.6: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 9.0$ m and $T_P = 18.5$ s.

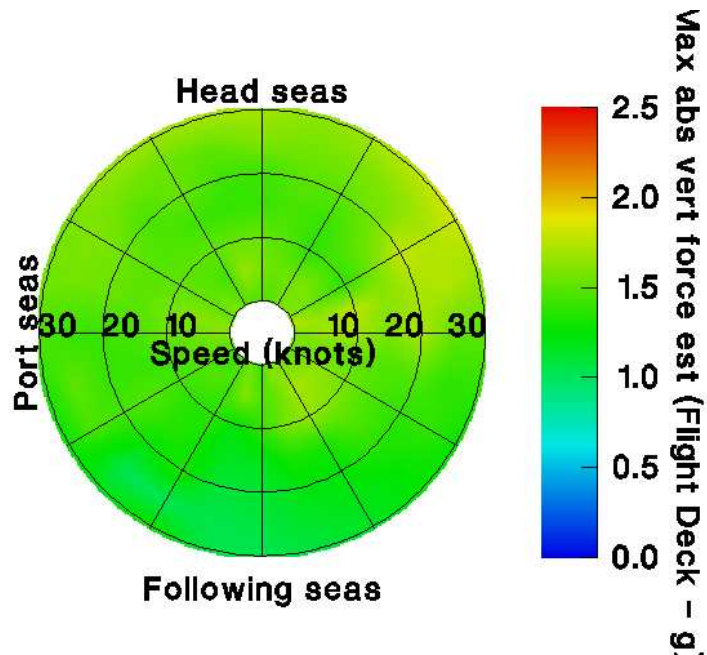


Figure O.7: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 16.4$ s.

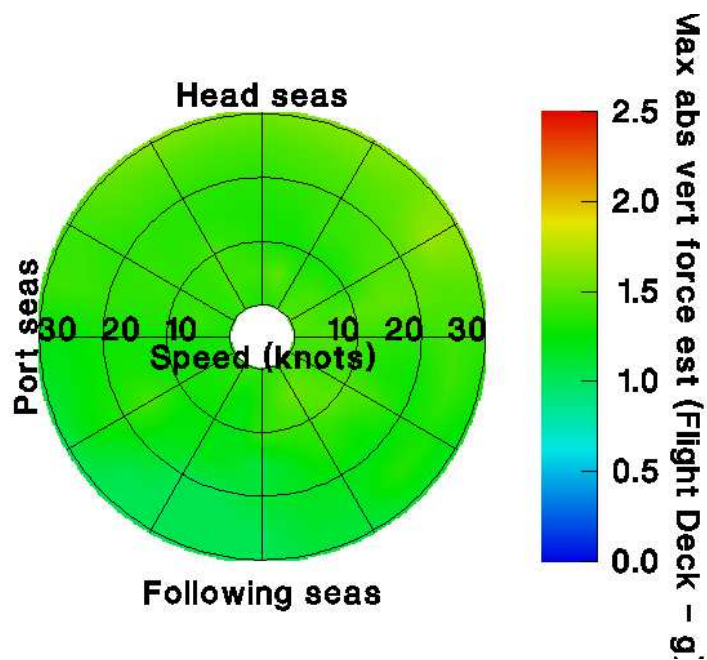


Figure O.8: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 14.0$ m and $T_P = 18.6$ s.

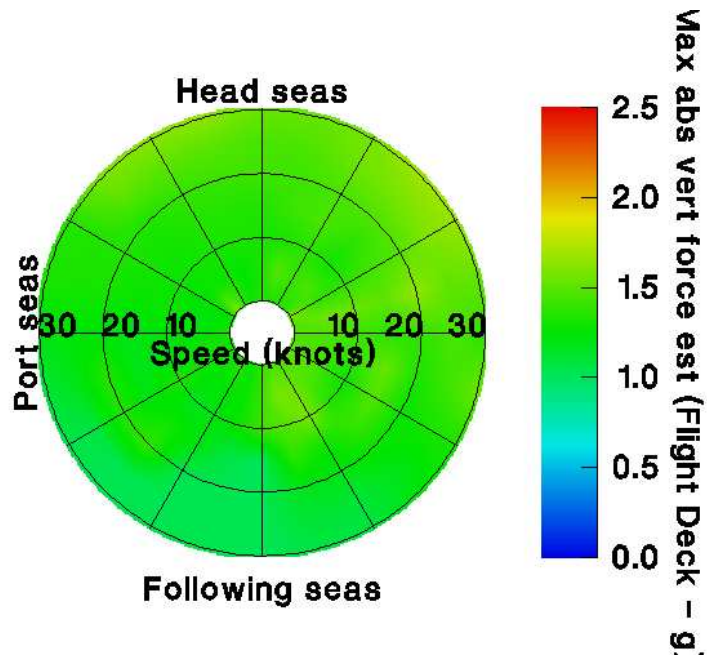


Figure O.9: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 20.0$ s.

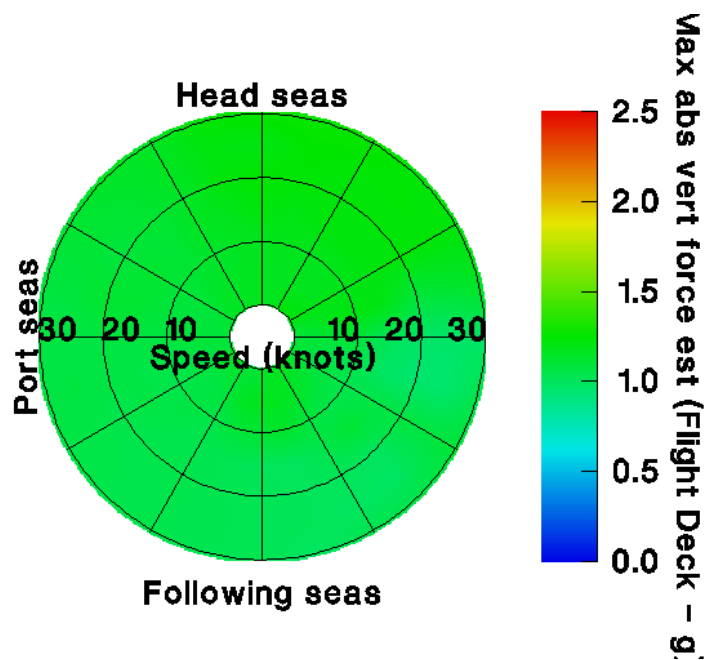


Figure O.10: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: Bretschneider with $H_S = 17.7$ m and $T_P = 25.7$ s.

Annex P
Polar Plots of Maximum Absolute Vertical
Force Estimator at Flight Deck – JONSWAP
Spectra (Coastal Waters)

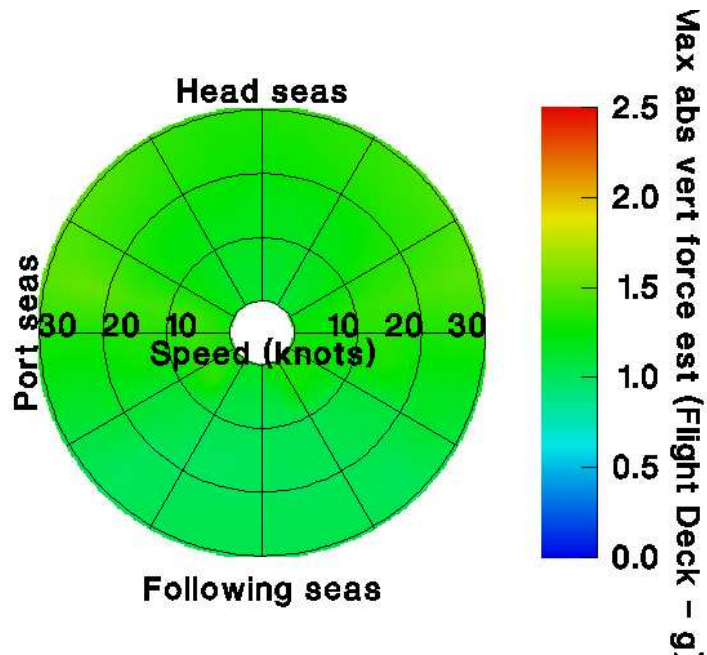


Figure P.1: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 8.2$ s.

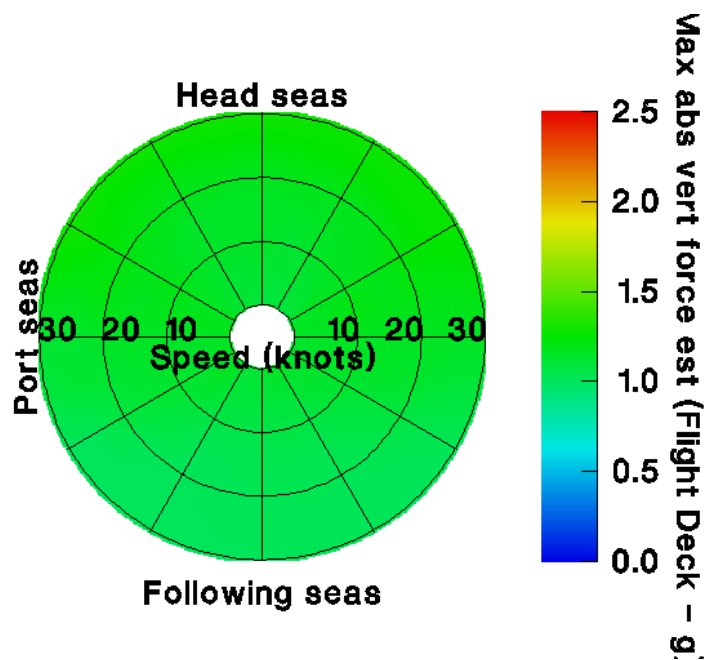


Figure P.2: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 4.0$ m and $T_P = 13.6$ s.

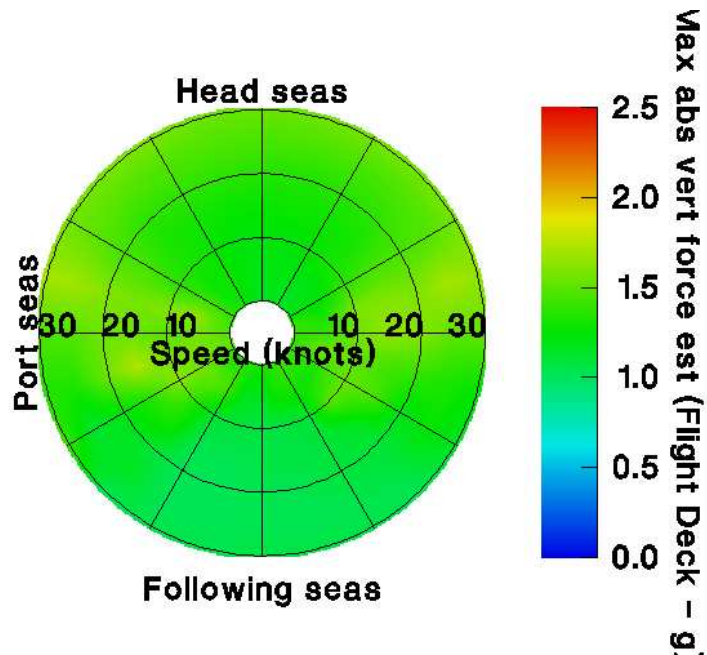


Figure P.3: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 9.3$ s.

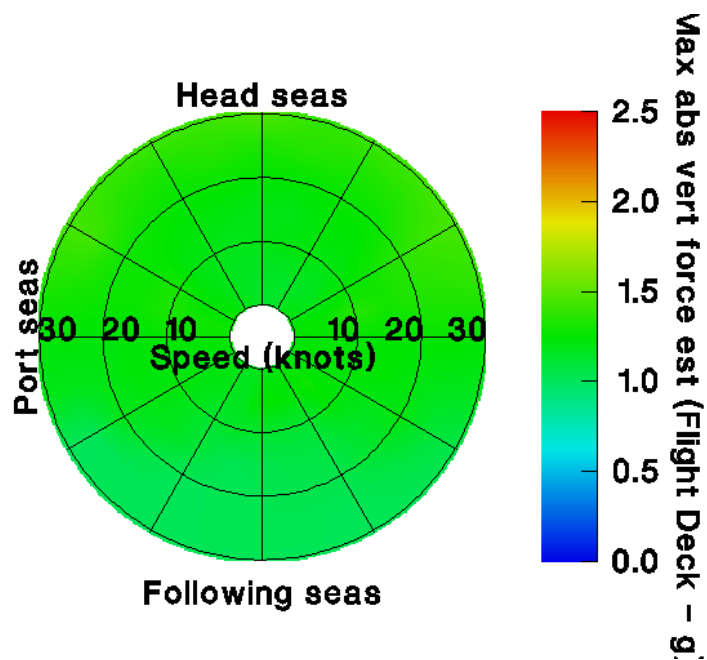


Figure P.4: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 6.0$ m and $T_P = 13.6$ s.

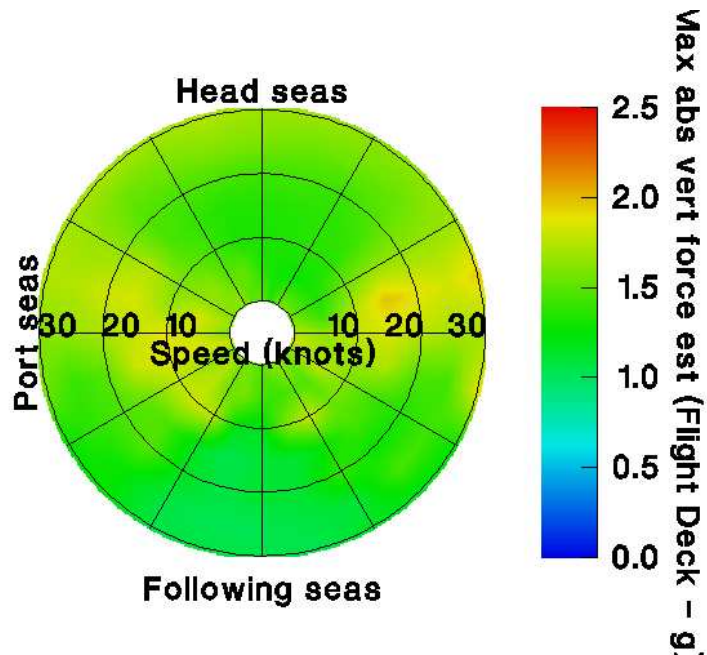


Figure P.5: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 11.0$ s.

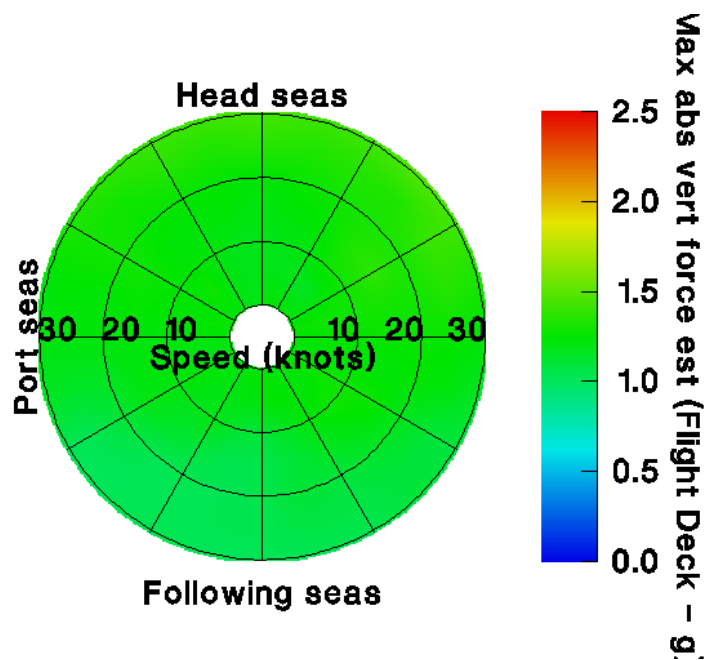


Figure P.6: Max. Abs. Vert. Force Est. at the Flight Deck with respect to Speed and Heading in a Seaway: JONSWAP with $H_S = 9.0$ m and $T_P = 17.1$ s.

Annex Q

Tables of Motion Maxima – Bretschneider Spectrum (Open Ocean)

Table Q.1: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.2 | -23.8 | 0.870 | 7.420 | 3.290 | 0.240 | 1.390 | 0.900 |
| 15.0 | -0.2 | -4.6 | 0.730 | 4.080 | 3.090 | 0.210 | 0.580 | 0.830 |
| 30.0 | -0.2 | 16.7 | 0.860 | 6.960 | 3.080 | 0.220 | 1.150 | 0.840 |
| 45.0 | -0.2 | 33.5 | 1.110 | 10.100 | 3.750 | 0.280 | 1.990 | 0.940 |
| 60.0 | -0.3 | 44.5 | 1.500 | 12.890 | 3.780 | 0.350 | 2.560 | 1.010 |
| 75.0 | -0.5 | 52.4 | 1.870 | 15.150 | 3.470 | 0.440 | 3.030 | 1.060 |
| 90.0 | -0.6 | 59.0 | 2.390 | 17.340 | 3.500 | 0.520 | 3.450 | 1.060 |
| 105.0 | -0.7 | 63.4 | 2.520 | 17.330 | 3.350 | 0.580 | 3.550 | 1.030 |
| 120.0 | -1.6 | 96.0 | 2.880 | 21.060 | 2.280 | 0.830 | 4.040 | 0.530 |
| 135.0 | -2.1 | 102.8 | 2.250 | 15.090 | 2.960 | 0.730 | 3.350 | 0.830 |
| 150.0 | -2.4 | 105.0 | 2.580 | 14.600 | 3.570 | 0.700 | 3.220 | 0.880 |
| 165.0 | -2.5 | 106.2 | 2.460 | 16.380 | 3.050 | 0.710 | 3.310 | 0.840 |
| 180.0 | -0.7 | 74.0 | 2.850 | 13.510 | 3.490 | 0.440 | 2.890 | 0.790 |
| 195.0 | -0.0 | 200.3 | 0.780 | 7.260 | 2.310 | 0.230 | 1.390 | 0.710 |
| 210.0 | -0.2 | 382.2 | 2.400 | 12.130 | 3.590 | 0.430 | 2.710 | 1.010 |
| 225.0 | -0.0 | 384.6 | 2.230 | 13.320 | 3.550 | 0.440 | 2.800 | 1.070 |
| 240.0 | 0.7 | 293.3 | 2.640 | 11.170 | 3.570 | 0.640 | 3.080 | 1.070 |
| 255.0 | 0.6 | 292.8 | 2.580 | 12.980 | 3.350 | 0.660 | 3.270 | 1.070 |
| 270.0 | 0.3 | 295.4 | 2.310 | 14.220 | 3.600 | 0.620 | 3.080 | 1.090 |
| 285.0 | 0.2 | 299.4 | 2.140 | 13.810 | 3.420 | 0.540 | 3.390 | 1.120 |
| 300.0 | 0.0 | 303.8 | 2.070 | 14.770 | 3.600 | 0.490 | 3.070 | 1.120 |
| 315.0 | -0.1 | 309.3 | 1.700 | 11.250 | 4.120 | 0.430 | 2.690 | 1.090 |
| 330.0 | -0.1 | 314.8 | 1.460 | 10.700 | 3.920 | 0.370 | 2.270 | 1.060 |
| 345.0 | -0.1 | 322.9 | 1.090 | 8.880 | 3.590 | 0.300 | 1.910 | 0.990 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.2: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.8 | -2.1 | 0.940 | 5.000 | 2.640 | 0.240 | 0.620 | 0.840 |
| 15.0 | 4.8 | 12.8 | 0.880 | 5.460 | 2.770 | 0.240 | 0.770 | 0.850 |
| 30.0 | 4.8 | 27.6 | 0.940 | 7.500 | 3.320 | 0.280 | 1.160 | 0.920 |
| 45.0 | 4.7 | 42.1 | 1.260 | 8.220 | 3.230 | 0.360 | 1.660 | 1.020 |
| 60.0 | 4.4 | 54.6 | 1.880 | 11.420 | 3.700 | 0.470 | 2.280 | 1.100 |
| 75.0 | 4.2 | 58.0 | 2.040 | 13.870 | 3.510 | 0.510 | 2.650 | 1.100 |
| 90.0 | 4.1 | 61.8 | 2.220 | 17.840 | 3.430 | 0.560 | 2.730 | 1.080 |
| 105.0 | 4.1 | 64.0 | 2.310 | 14.970 | 3.310 | 0.590 | 2.850 | 1.080 |
| 120.0 | 4.1 | 65.4 | 2.380 | 13.420 | 3.390 | 0.600 | 2.850 | 1.080 |
| 135.0 | 4.1 | 65.8 | 2.750 | 13.560 | 3.350 | 0.580 | 2.740 | 1.080 |
| 150.0 | 4.6 | 145.4 | 0.950 | 9.440 | 2.200 | 0.260 | 1.880 | 0.690 |
| 165.0 | 4.9 | 163.1 | 0.690 | 7.290 | 2.180 | 0.200 | 1.410 | 0.600 |
| 180.0 | 4.9 | 178.7 | 0.660 | 5.480 | 2.100 | 0.190 | 0.980 | 0.570 |
| 195.0 | 4.9 | 194.1 | 0.760 | 6.240 | 2.200 | 0.200 | 1.300 | 0.590 |
| 210.0 | 4.9 | 210.1 | 0.890 | 9.330 | 2.220 | 0.250 | 1.890 | 0.680 |
| 225.0 | 4.6 | 229.1 | 1.280 | 11.510 | 2.690 | 0.380 | 2.490 | 0.830 |
| 240.0 | 4.6 | 285.6 | 2.780 | 11.260 | 3.090 | 0.770 | 2.690 | 0.960 |
| 255.0 | 4.5 | 287.1 | 2.870 | 11.820 | 3.140 | 0.760 | 2.650 | 0.980 |
| 270.0 | 4.5 | 288.9 | 2.830 | 14.230 | 3.110 | 0.740 | 2.740 | 1.020 |
| 285.0 | 4.7 | 291.1 | 2.510 | 11.910 | 3.530 | 0.700 | 2.620 | 1.070 |
| 300.0 | 4.9 | 301.1 | 2.060 | 9.870 | 3.690 | 0.540 | 2.370 | 1.150 |
| 315.0 | 4.8 | 314.2 | 1.280 | 8.980 | 3.750 | 0.390 | 1.840 | 1.070 |
| 330.0 | 4.8 | 328.5 | 1.010 | 8.030 | 3.180 | 0.300 | 1.200 | 0.960 |
| 345.0 | 4.8 | 343.2 | 0.970 | 5.720 | 2.950 | 0.250 | 0.830 | 0.880 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.3: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 10.0 | -0.6 | 0.900 | 5.360 | 2.550 | 0.300 | 0.520 | 0.830 |
| 15.0 | 10.0 | 14.4 | 1.010 | 5.230 | 2.730 | 0.310 | 0.570 | 0.850 |
| 30.0 | 10.0 | 29.4 | 1.150 | 6.840 | 2.890 | 0.350 | 0.870 | 0.930 |
| 45.0 | 10.0 | 44.4 | 1.580 | 8.180 | 3.690 | 0.440 | 1.310 | 1.030 |
| 60.0 | 10.0 | 59.2 | 1.920 | 10.840 | 3.410 | 0.580 | 1.930 | 1.110 |
| 75.0 | 10.0 | 73.0 | 2.730 | 12.870 | 3.150 | 0.760 | 2.010 | 0.980 |
| 90.0 | 9.6 | 85.5 | 2.910 | 22.310 | 1.430 | 0.870 | 2.910 | 0.410 |
| 105.0 | 9.3 | 100.2 | 2.600 | 22.250 | 2.390 | 0.730 | 3.250 | 0.600 |
| 120.0 | 9.7 | 117.2 | 1.900 | 19.380 | 2.960 | 0.490 | 3.500 | 0.760 |
| 135.0 | 9.9 | 133.4 | 0.970 | 15.130 | 1.960 | 0.320 | 4.540 | 0.660 |
| 150.0 | 10.0 | 148.9 | 0.660 | 17.690 | 1.630 | 0.230 | 5.140 | 0.550 |
| 165.0 | 10.1 | 164.2 | 0.700 | 20.670 | 1.740 | 0.190 | 4.400 | 0.480 |
| 180.0 | 10.1 | 179.3 | 0.500 | 13.600 | 1.640 | 0.180 | 2.770 | 0.480 |
| 195.0 | 10.1 | 194.6 | 0.590 | 9.650 | 1.520 | 0.200 | 2.430 | 0.510 |
| 210.0 | 10.1 | 210.3 | 0.690 | 12.460 | 1.700 | 0.250 | 4.090 | 0.590 |
| 225.0 | 10.0 | 225.7 | 0.900 | 15.070 | 1.880 | 0.340 | 4.170 | 0.700 |
| 240.0 | 9.8 | 241.9 | 2.030 | 13.200 | 2.960 | 0.520 | 3.490 | 0.800 |
| 255.0 | 9.4 | 259.4 | 2.770 | 15.930 | 2.680 | 0.780 | 3.180 | 0.660 |
| 270.0 | 9.7 | 274.2 | 3.040 | 19.890 | 1.790 | 0.920 | 2.920 | 0.380 |
| 285.0 | 10.1 | 286.7 | 2.730 | 10.180 | 3.250 | 0.800 | 2.030 | 0.980 |
| 300.0 | 10.1 | 300.1 | 2.270 | 10.030 | 3.890 | 0.610 | 2.020 | 1.130 |
| 315.0 | 10.0 | 314.7 | 1.550 | 6.740 | 3.540 | 0.460 | 1.370 | 1.060 |
| 330.0 | 10.0 | 329.7 | 1.260 | 6.730 | 2.880 | 0.360 | 0.870 | 0.950 |
| 345.0 | 10.0 | 344.6 | 0.980 | 5.020 | 2.860 | 0.310 | 0.590 | 0.860 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.4: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|-------------|------------------|------------------|----------|-----------|--------------------|----------|-----------|
| | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.2 | -0.2 | 1.270 | 5.480 | 2.530 | 0.370 | 0.480 | 0.810 |
| 15.0 | 15.2 | 14.8 | 1.330 | 6.120 | 2.600 | 0.380 | 0.540 | 0.830 |
| 30.0 | 15.2 | 29.8 | 1.400 | 7.170 | 3.040 | 0.440 | 0.780 | 0.910 |
| 45.0 | 15.1 | 44.8 | 1.580 | 8.470 | 3.110 | 0.530 | 1.130 | 1.010 |
| 60.0 | 15.2 | 59.6 | 2.250 | 12.420 | 3.480 | 0.670 | 1.640 | 1.070 |
| 75.0 | 15.2 | 74.0 | 2.660 | 14.990 | 3.130 | 0.820 | 1.890 | 0.930 |
| 90.0 | 15.1 | 88.4 | 3.030 | 23.480 | 1.240 | 0.860 | 3.050 | 0.210 |
| 105.0 | 15.0 | 103.3 | 2.300 | 18.650 | 2.120 | 0.650 | 3.200 | 0.590 |
| 120.0 | 15.1 | 118.8 | 1.350 | 20.980 | 2.130 | 0.440 | 6.480 | 0.640 |
| 135.0 | 15.2 | 134.5 | 0.900 | 22.100 | 1.540 | 0.300 | 7.600 | 0.520 |
| 150.0 | 15.2 | 149.7 | 0.830 | 18.010 | 1.770 | 0.260 | 5.300 | 0.580 |
| 165.0 | 15.1 | 164.7 | 0.560 | 11.930 | 1.560 | 0.230 | 2.730 | 0.530 |
| 180.0 | 15.3 | 179.7 | 0.460 | 13.040 | 1.270 | 0.170 | 1.500 | 0.420 |
| 195.0 | 15.2 | 194.6 | 0.590 | 16.550 | 1.440 | 0.210 | 2.500 | 0.480 |
| 210.0 | 15.2 | 209.8 | 0.710 | 17.610 | 1.520 | 0.240 | 4.810 | 0.540 |
| 225.0 | 15.2 | 225.3 | 1.020 | 20.400 | 1.910 | 0.310 | 7.450 | 0.570 |
| 240.0 | 15.1 | 241.1 | 1.910 | 19.950 | 2.710 | 0.490 | 6.050 | 0.700 |
| 255.0 | 15.0 | 256.7 | 2.420 | 15.660 | 2.140 | 0.710 | 3.500 | 0.650 |
| 270.0 | 15.1 | 271.7 | 2.950 | 16.680 | 1.050 | 0.910 | 3.390 | 0.210 |
| 285.0 | 15.3 | 285.9 | 2.760 | 9.390 | 3.060 | 0.860 | 2.190 | 0.930 |
| 300.0 | 15.2 | 300.1 | 2.350 | 7.750 | 3.360 | 0.690 | 1.670 | 1.090 |
| 315.0 | 15.2 | 314.9 | 1.700 | 7.000 | 3.200 | 0.550 | 1.190 | 1.030 |
| 330.0 | 15.2 | 329.9 | 1.410 | 6.170 | 3.070 | 0.440 | 0.730 | 0.920 |
| 345.0 | 15.2 | 344.8 | 1.310 | 5.210 | 2.620 | 0.390 | 0.490 | 0.840 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.5: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.3 | -0.1 | 1.380 | 5.950 | 2.580 | 0.440 | 0.460 | 0.780 |
| 15.0 | 20.3 | 14.9 | 1.500 | 6.770 | 2.820 | 0.460 | 0.500 | 0.810 |
| 30.0 | 20.3 | 29.9 | 1.630 | 7.770 | 3.040 | 0.520 | 0.720 | 0.880 |
| 45.0 | 20.3 | 44.9 | 1.910 | 9.670 | 3.030 | 0.610 | 1.060 | 0.970 |
| 60.0 | 20.3 | 59.8 | 2.460 | 11.870 | 3.320 | 0.740 | 1.560 | 1.030 |
| 75.0 | 20.4 | 74.4 | 3.110 | 16.390 | 3.200 | 0.860 | 2.020 | 0.880 |
| 90.0 | 20.3 | 89.1 | 2.630 | 23.760 | 0.950 | 0.830 | 3.120 | 0.180 |
| 105.0 | 20.2 | 104.0 | 2.870 | 23.680 | 2.490 | 0.610 | 4.130 | 0.510 |
| 120.0 | 20.3 | 119.5 | 1.480 | 27.970 | 1.970 | 0.410 | 9.330 | 0.510 |
| 135.0 | 20.3 | 134.9 | 0.910 | 23.480 | 1.800 | 0.310 | 7.210 | 0.530 |
| 150.0 | 20.4 | 149.6 | 0.630 | 16.210 | 1.440 | 0.210 | 3.810 | 0.450 |
| 165.0 | 20.8 | 164.7 | 0.510 | 16.140 | 1.330 | 0.180 | 1.740 | 0.410 |
| 180.0 | 20.1 | 179.6 | 0.480 | 19.940 | 1.730 | 0.170 | 2.800 | 0.430 |
| 195.0 | 20.7 | 195.0 | 0.590 | 19.590 | 2.110 | 0.180 | 2.710 | 0.420 |
| 210.0 | 20.5 | 210.1 | 0.670 | 24.330 | 1.410 | 0.210 | 4.430 | 0.450 |
| 225.0 | 20.3 | 225.0 | 0.740 | 25.560 | 1.460 | 0.270 | 7.280 | 0.470 |
| 240.0 | 20.3 | 240.5 | 1.550 | 28.490 | 2.800 | 0.440 | 8.840 | 0.560 |
| 255.0 | 20.2 | 255.9 | 2.720 | 24.670 | 2.360 | 0.670 | 4.440 | 0.590 |
| 270.0 | 20.3 | 270.9 | 2.880 | 15.500 | 1.120 | 0.880 | 3.720 | 0.190 |
| 285.0 | 20.4 | 285.5 | 3.070 | 9.510 | 3.020 | 0.890 | 2.610 | 0.890 |
| 300.0 | 20.3 | 300.1 | 2.410 | 8.510 | 3.410 | 0.760 | 1.890 | 1.040 |
| 315.0 | 20.3 | 315.0 | 1.920 | 7.650 | 3.260 | 0.620 | 1.210 | 0.980 |
| 330.0 | 20.3 | 329.9 | 1.740 | 5.840 | 3.060 | 0.520 | 0.710 | 0.880 |
| 345.0 | 20.3 | 344.9 | 1.500 | 5.330 | 2.820 | 0.460 | 0.460 | 0.810 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.6: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 1.530 | 6.480 | 2.360 | 0.490 | 0.490 | 0.740 |
| 15.0 | 25.4 | 14.9 | 1.640 | 7.220 | 2.600 | 0.510 | 0.520 | 0.760 |
| 30.0 | 25.4 | 29.9 | 1.930 | 8.780 | 2.890 | 0.570 | 0.750 | 0.830 |
| 45.0 | 25.4 | 44.9 | 2.460 | 10.660 | 3.160 | 0.670 | 1.140 | 0.920 |
| 60.0 | 25.4 | 59.8 | 2.630 | 13.410 | 3.180 | 0.800 | 1.700 | 0.990 |
| 75.0 | 25.4 | 74.6 | 3.520 | 16.630 | 2.980 | 0.890 | 2.160 | 0.850 |
| 90.0 | 25.4 | 89.4 | 2.580 | 21.640 | 0.940 | 0.810 | 3.260 | 0.180 |
| 105.0 | 25.4 | 104.4 | 1.990 | 22.770 | 2.000 | 0.580 | 5.110 | 0.480 |
| 120.0 | 25.4 | 119.9 | 1.250 | 32.370 | 1.960 | 0.360 | 10.780 | 0.490 |
| 135.0 | 25.3 | 134.9 | 0.920 | 23.920 | 1.780 | 0.280 | 6.670 | 0.490 |
| 150.0 | 25.4 | 149.9 | 0.710 | 16.820 | 1.670 | 0.210 | 3.270 | 0.450 |
| 165.0 | 25.3 | 164.9 | 0.570 | 18.910 | 1.670 | 0.170 | 2.270 | 0.400 |
| 180.0 | 25.6 | 179.9 | 0.510 | 18.130 | 1.410 | 0.160 | 2.100 | 0.370 |
| 195.0 | 25.3 | 194.7 | 0.550 | 19.690 | 1.700 | 0.160 | 3.530 | 0.400 |
| 210.0 | 25.3 | 209.8 | 0.700 | 24.080 | 1.810 | 0.210 | 4.530 | 0.460 |
| 225.0 | 25.1 | 224.5 | 0.890 | 29.940 | 1.950 | 0.260 | 7.620 | 0.470 |
| 240.0 | 25.4 | 240.2 | 1.390 | 34.210 | 2.250 | 0.390 | 11.780 | 0.550 |
| 255.0 | 25.4 | 255.6 | 2.090 | 23.450 | 2.010 | 0.640 | 5.390 | 0.550 |
| 270.0 | 25.4 | 270.6 | 2.780 | 15.650 | 0.870 | 0.850 | 4.000 | 0.200 |
| 285.0 | 25.4 | 285.4 | 3.190 | 10.540 | 2.840 | 0.920 | 3.110 | 0.850 |
| 300.0 | 25.4 | 300.1 | 2.600 | 9.100 | 3.490 | 0.810 | 2.240 | 0.980 |
| 315.0 | 25.4 | 315.1 | 2.330 | 7.710 | 3.200 | 0.680 | 1.410 | 0.920 |
| 330.0 | 25.4 | 330.0 | 1.860 | 6.130 | 2.830 | 0.580 | 0.810 | 0.830 |
| 345.0 | 25.4 | 345.0 | 1.640 | 5.920 | 2.670 | 0.510 | 0.510 | 0.760 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.7: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 1.550 | 6.730 | 2.330 | 0.520 | 0.500 | 0.690 |
| 15.0 | 30.5 | 14.9 | 1.620 | 7.070 | 2.280 | 0.540 | 0.500 | 0.720 |
| 30.0 | 30.5 | 29.9 | 1.900 | 8.700 | 2.740 | 0.610 | 0.780 | 0.780 |
| 45.0 | 30.5 | 44.9 | 2.420 | 12.580 | 2.920 | 0.710 | 1.290 | 0.870 |
| 60.0 | 30.5 | 59.8 | 2.680 | 15.490 | 3.240 | 0.840 | 1.960 | 0.940 |
| 75.0 | 30.5 | 74.7 | 2.770 | 15.150 | 2.460 | 0.920 | 2.240 | 0.820 |
| 90.0 | 30.5 | 89.5 | 2.560 | 20.940 | 1.030 | 0.790 | 3.280 | 0.180 |
| 105.0 | 30.5 | 104.6 | 2.230 | 25.200 | 2.380 | 0.540 | 6.150 | 0.410 |
| 120.0 | 30.4 | 119.9 | 1.330 | 32.800 | 2.000 | 0.410 | 12.060 | 0.570 |
| 135.0 | 30.5 | 134.7 | 0.850 | 20.490 | 1.560 | 0.270 | 6.390 | 0.480 |
| 150.0 | 30.5 | 149.9 | 0.630 | 18.570 | 1.280 | 0.200 | 3.680 | 0.380 |
| 165.0 | 30.5 | 164.8 | 0.610 | 16.340 | 1.190 | 0.160 | 2.500 | 0.310 |
| 180.0 | 30.5 | 179.9 | 0.550 | 18.080 | 1.280 | 0.160 | 2.730 | 0.310 |
| 195.0 | 30.6 | 194.9 | 0.610 | 21.340 | 1.360 | 0.160 | 3.750 | 0.310 |
| 210.0 | 30.4 | 209.9 | 0.750 | 23.490 | 1.500 | 0.200 | 5.000 | 0.400 |
| 225.0 | 30.4 | 224.9 | 0.840 | 25.410 | 1.620 | 0.270 | 6.330 | 0.490 |
| 240.0 | 30.4 | 240.1 | 1.630 | 39.430 | 2.680 | 0.430 | 12.420 | 0.630 |
| 255.0 | 30.5 | 255.3 | 2.080 | 25.510 | 1.970 | 0.610 | 6.640 | 0.520 |
| 270.0 | 30.5 | 270.4 | 2.800 | 16.880 | 0.760 | 0.830 | 4.280 | 0.210 |
| 285.0 | 30.5 | 285.3 | 3.080 | 13.540 | 2.770 | 0.940 | 3.410 | 0.810 |
| 300.0 | 30.5 | 300.2 | 2.770 | 10.970 | 3.040 | 0.850 | 2.700 | 0.930 |
| 315.0 | 30.5 | 315.1 | 2.470 | 9.460 | 2.940 | 0.720 | 1.680 | 0.860 |
| 330.0 | 30.5 | 330.0 | 1.910 | 7.340 | 2.630 | 0.610 | 0.990 | 0.780 |
| 345.0 | 30.5 | 345.0 | 1.680 | 6.800 | 2.420 | 0.540 | 0.620 | 0.710 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.8: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.0 | -14.9 | 2.620 | 7.930 | 3.410 | 0.740 | 1.990 | 1.040 |
| 15.0 | -0.1 | -6.0 | 2.460 | 6.270 | 3.590 | 0.730 | 1.350 | 1.050 |
| 30.0 | -0.2 | 5.3 | 2.390 | 8.080 | 3.690 | 0.730 | 1.720 | 1.050 |
| 45.0 | -0.2 | 22.7 | 2.580 | 11.720 | 3.830 | 0.740 | 3.000 | 1.010 |
| 60.0 | -0.1 | 39.4 | 2.830 | 13.820 | 3.400 | 0.790 | 3.890 | 0.940 |
| 75.0 | -0.1 | 53.3 | 3.030 | 15.660 | 3.180 | 0.840 | 4.290 | 0.810 |
| 90.0 | -0.1 | 68.5 | 3.400 | 15.320 | 1.990 | 0.900 | 4.450 | 0.570 |
| 105.0 | -0.1 | 88.4 | 3.720 | 15.940 | 1.260 | 0.950 | 4.600 | 0.130 |
| 120.0 | -0.3 | 99.9 | 3.340 | 16.750 | 2.040 | 0.930 | 4.730 | 0.320 |
| 135.0 | -0.5 | 108.2 | 3.360 | 15.360 | 2.250 | 0.910 | 4.720 | 0.510 |
| 150.0 | -0.8 | 115.2 | 2.860 | 15.160 | 2.490 | 0.880 | 4.680 | 0.650 |
| 165.0 | -1.0 | 119.3 | 2.750 | 14.300 | 2.560 | 0.860 | 4.570 | 0.720 |
| 180.0 | -0.5 | 53.8 | 2.820 | 12.510 | 3.470 | 0.770 | 3.320 | 0.970 |
| 195.0 | 0.1 | 338.6 | 2.730 | 13.390 | 3.440 | 0.810 | 3.690 | 0.930 |
| 210.0 | 0.2 | 248.5 | 3.130 | 14.960 | 2.560 | 0.940 | 4.420 | 0.610 |
| 225.0 | 0.1 | 255.3 | 3.200 | 14.510 | 2.310 | 0.970 | 4.450 | 0.480 |
| 240.0 | 0.1 | 263.7 | 3.450 | 14.580 | 2.080 | 0.990 | 4.420 | 0.290 |
| 255.0 | 0.1 | 275.2 | 3.500 | 14.230 | 1.290 | 1.000 | 4.280 | 0.220 |
| 270.0 | 0.2 | 288.2 | 3.620 | 14.020 | 1.800 | 0.960 | 4.130 | 0.510 |
| 285.0 | 0.2 | 298.6 | 3.370 | 13.690 | 2.430 | 0.920 | 4.010 | 0.720 |
| 300.0 | 0.1 | 308.0 | 3.200 | 13.520 | 2.830 | 0.870 | 3.900 | 0.850 |
| 315.0 | 0.1 | 317.0 | 2.920 | 13.920 | 3.130 | 0.830 | 3.640 | 0.930 |
| 330.0 | 0.1 | 326.3 | 2.920 | 12.130 | 3.240 | 0.800 | 3.270 | 0.990 |
| 345.0 | 0.0 | 336.0 | 2.880 | 10.350 | 3.380 | 0.760 | 2.690 | 1.020 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.9: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.9 | -2.4 | 2.820 | 5.650 | 3.630 | 0.730 | 0.880 | 1.070 |
| 15.0 | 4.8 | 12.3 | 2.760 | 7.460 | 3.380 | 0.730 | 1.570 | 1.060 |
| 30.0 | 4.8 | 27.1 | 2.960 | 9.930 | 3.320 | 0.760 | 2.510 | 1.020 |
| 45.0 | 4.8 | 42.0 | 2.780 | 12.560 | 3.310 | 0.800 | 3.210 | 0.940 |
| 60.0 | 4.8 | 56.5 | 3.220 | 14.180 | 2.720 | 0.860 | 3.600 | 0.800 |
| 75.0 | 4.8 | 71.2 | 3.130 | 13.980 | 1.920 | 0.920 | 3.770 | 0.530 |
| 90.0 | 4.8 | 85.7 | 3.240 | 13.520 | 0.640 | 0.950 | 3.980 | 0.140 |
| 105.0 | 4.7 | 100.0 | 2.990 | 15.480 | 1.100 | 0.930 | 4.210 | 0.280 |
| 120.0 | 4.4 | 110.5 | 3.630 | 16.430 | 2.240 | 0.890 | 4.210 | 0.520 |
| 135.0 | 4.2 | 120.6 | 2.980 | 14.240 | 2.520 | 0.850 | 4.080 | 0.670 |
| 150.0 | 4.5 | 143.2 | 2.490 | 11.450 | 2.880 | 0.770 | 2.900 | 0.840 |
| 165.0 | 4.7 | 161.6 | 2.500 | 7.820 | 2.910 | 0.730 | 1.650 | 0.890 |
| 180.0 | 4.9 | 178.1 | 2.380 | 6.780 | 3.010 | 0.720 | 1.340 | 0.910 |
| 195.0 | 4.9 | 194.3 | 2.510 | 8.140 | 2.980 | 0.730 | 2.120 | 0.900 |
| 210.0 | 4.9 | 210.7 | 2.500 | 9.840 | 2.900 | 0.760 | 3.020 | 0.870 |
| 225.0 | 4.9 | 227.2 | 2.930 | 11.860 | 2.800 | 0.830 | 3.650 | 0.800 |
| 240.0 | 4.8 | 243.0 | 3.370 | 12.620 | 2.190 | 0.900 | 3.980 | 0.640 |
| 255.0 | 4.9 | 257.2 | 3.140 | 12.530 | 1.540 | 0.960 | 4.020 | 0.370 |
| 270.0 | 5.0 | 271.5 | 3.360 | 13.470 | 0.390 | 0.990 | 3.840 | 0.070 |
| 285.0 | 5.0 | 286.0 | 3.790 | 13.000 | 1.600 | 0.960 | 3.600 | 0.460 |
| 300.0 | 5.0 | 300.3 | 3.230 | 11.980 | 2.970 | 0.910 | 3.440 | 0.770 |
| 315.0 | 5.0 | 314.4 | 3.000 | 11.560 | 2.890 | 0.840 | 3.070 | 0.930 |
| 330.0 | 4.9 | 328.6 | 2.700 | 10.380 | 3.230 | 0.790 | 2.510 | 1.020 |
| 345.0 | 4.9 | 343.1 | 2.870 | 8.410 | 3.500 | 0.750 | 1.700 | 1.060 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.10: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 10.1 | -0.6 | 2.730 | 4.790 | 4.420 | 0.750 | 0.480 | 1.070 |
| 15.0 | 10.1 | 14.4 | 2.940 | 7.040 | 4.170 | 0.760 | 1.170 | 1.060 |
| 30.0 | 10.1 | 29.5 | 2.840 | 9.030 | 3.670 | 0.780 | 1.980 | 1.020 |
| 45.0 | 10.1 | 44.5 | 2.670 | 11.320 | 3.110 | 0.830 | 2.520 | 0.930 |
| 60.0 | 10.1 | 59.3 | 3.070 | 12.550 | 2.450 | 0.880 | 2.890 | 0.760 |
| 75.0 | 10.2 | 74.2 | 3.520 | 13.450 | 1.750 | 0.920 | 3.010 | 0.470 |
| 90.0 | 10.1 | 89.0 | 3.520 | 12.880 | 0.310 | 0.930 | 3.390 | 0.090 |
| 105.0 | 10.1 | 103.9 | 2.950 | 15.250 | 1.280 | 0.890 | 3.750 | 0.330 |
| 120.0 | 10.0 | 118.6 | 2.670 | 17.130 | 2.350 | 0.840 | 4.000 | 0.570 |
| 135.0 | 10.0 | 133.7 | 2.710 | 15.810 | 2.630 | 0.780 | 3.820 | 0.700 |
| 150.0 | 10.0 | 148.9 | 2.380 | 13.960 | 2.480 | 0.730 | 3.690 | 0.770 |
| 165.0 | 10.1 | 164.1 | 2.510 | 12.870 | 2.820 | 0.710 | 2.860 | 0.810 |
| 180.0 | 10.1 | 179.3 | 2.570 | 10.500 | 3.180 | 0.700 | 1.850 | 0.820 |
| 195.0 | 10.1 | 194.6 | 2.390 | 9.620 | 2.730 | 0.710 | 2.090 | 0.820 |
| 210.0 | 10.1 | 210.1 | 2.450 | 11.220 | 2.570 | 0.750 | 3.430 | 0.800 |
| 225.0 | 10.1 | 225.6 | 2.520 | 11.940 | 2.800 | 0.810 | 4.160 | 0.740 |
| 240.0 | 10.1 | 240.8 | 3.110 | 13.430 | 2.400 | 0.880 | 4.390 | 0.620 |
| 255.0 | 10.2 | 255.6 | 3.990 | 14.010 | 1.470 | 0.940 | 4.150 | 0.380 |
| 270.0 | 10.2 | 270.4 | 3.520 | 13.140 | 0.290 | 0.970 | 3.720 | 0.080 |
| 285.0 | 10.2 | 285.1 | 3.580 | 12.730 | 1.670 | 0.960 | 3.330 | 0.450 |
| 300.0 | 10.1 | 299.9 | 3.510 | 11.510 | 2.610 | 0.910 | 2.980 | 0.760 |
| 315.0 | 10.1 | 314.6 | 2.850 | 10.070 | 3.230 | 0.850 | 2.450 | 0.940 |
| 330.0 | 10.1 | 329.5 | 3.030 | 8.750 | 3.880 | 0.800 | 1.810 | 1.020 |
| 345.0 | 10.1 | 344.4 | 2.830 | 7.070 | 4.080 | 0.770 | 1.030 | 1.060 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.11: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.2 | -0.3 | 2.710 | 5.140 | 3.360 | 0.800 | 0.450 | 1.060 |
| 15.0 | 15.2 | 14.8 | 2.620 | 6.730 | 3.330 | 0.800 | 1.080 | 1.050 |
| 30.0 | 15.2 | 29.9 | 2.850 | 9.470 | 3.640 | 0.820 | 1.780 | 1.010 |
| 45.0 | 15.2 | 44.9 | 3.530 | 11.910 | 3.520 | 0.860 | 2.360 | 0.920 |
| 60.0 | 15.2 | 59.8 | 3.000 | 11.550 | 2.670 | 0.890 | 2.820 | 0.760 |
| 75.0 | 15.3 | 74.7 | 3.020 | 11.960 | 1.480 | 0.910 | 2.660 | 0.460 |
| 90.0 | 15.3 | 89.6 | 3.670 | 13.090 | 0.400 | 0.910 | 3.060 | 0.110 |
| 105.0 | 15.3 | 104.5 | 3.150 | 16.000 | 1.120 | 0.870 | 3.620 | 0.320 |
| 120.0 | 15.2 | 119.3 | 2.610 | 20.260 | 1.810 | 0.810 | 4.900 | 0.520 |
| 135.0 | 15.2 | 134.6 | 2.350 | 20.000 | 2.320 | 0.760 | 5.060 | 0.640 |
| 150.0 | 15.2 | 149.7 | 2.130 | 13.100 | 2.160 | 0.720 | 3.120 | 0.700 |
| 165.0 | 15.2 | 164.7 | 2.200 | 9.400 | 2.380 | 0.690 | 1.950 | 0.760 |
| 180.0 | 15.3 | 179.7 | 2.130 | 7.900 | 2.250 | 0.680 | 0.950 | 0.700 |
| 195.0 | 15.2 | 194.8 | 2.440 | 14.860 | 2.800 | 0.700 | 2.150 | 0.800 |
| 210.0 | 15.2 | 209.9 | 2.090 | 16.280 | 2.230 | 0.730 | 3.670 | 0.730 |
| 225.0 | 15.2 | 225.2 | 2.780 | 17.520 | 2.220 | 0.780 | 5.710 | 0.680 |
| 240.0 | 15.2 | 240.4 | 2.990 | 17.470 | 2.190 | 0.850 | 5.450 | 0.570 |
| 255.0 | 15.3 | 255.3 | 3.270 | 15.270 | 1.290 | 0.920 | 4.490 | 0.360 |
| 270.0 | 15.3 | 270.2 | 3.310 | 14.360 | 0.420 | 0.950 | 3.810 | 0.110 |
| 285.0 | 15.3 | 285.0 | 3.790 | 13.350 | 1.540 | 0.960 | 3.280 | 0.450 |
| 300.0 | 15.2 | 299.9 | 3.220 | 12.130 | 2.360 | 0.920 | 2.840 | 0.750 |
| 315.0 | 15.2 | 314.7 | 3.660 | 10.840 | 3.260 | 0.880 | 2.210 | 0.930 |
| 330.0 | 15.2 | 329.7 | 2.740 | 8.780 | 3.630 | 0.830 | 1.520 | 1.010 |
| 345.0 | 15.2 | 344.7 | 2.640 | 6.450 | 3.370 | 0.810 | 0.770 | 1.050 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.12: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.3 | -0.1 | 2.890 | 5.870 | 3.460 | 0.850 | 0.490 | 1.040 |
| 15.0 | 20.3 | 14.9 | 2.770 | 7.630 | 3.230 | 0.860 | 1.110 | 1.030 |
| 30.0 | 20.3 | 30.0 | 3.460 | 9.200 | 3.260 | 0.870 | 1.800 | 0.990 |
| 45.0 | 20.3 | 45.0 | 3.010 | 11.490 | 2.880 | 0.890 | 2.430 | 0.910 |
| 60.0 | 20.3 | 59.9 | 3.460 | 12.910 | 2.830 | 0.910 | 3.030 | 0.750 |
| 75.0 | 20.4 | 74.8 | 3.170 | 11.270 | 1.660 | 0.910 | 2.450 | 0.470 |
| 90.0 | 20.4 | 89.8 | 3.570 | 13.320 | 0.500 | 0.880 | 2.840 | 0.140 |
| 105.0 | 20.4 | 104.8 | 3.030 | 17.360 | 1.200 | 0.840 | 3.450 | 0.300 |
| 120.0 | 20.3 | 119.7 | 3.180 | 25.080 | 1.870 | 0.780 | 6.340 | 0.480 |
| 135.0 | 20.3 | 134.8 | 2.210 | 18.950 | 1.940 | 0.750 | 5.520 | 0.620 |
| 150.0 | 20.3 | 149.8 | 2.040 | 11.550 | 1.860 | 0.690 | 3.120 | 0.640 |
| 165.0 | 20.4 | 164.8 | 1.880 | 8.190 | 2.210 | 0.610 | 1.650 | 0.640 |
| 180.0 | 20.4 | 179.9 | 1.960 | 9.990 | 2.190 | 0.730 | 1.010 | 0.740 |
| 195.0 | 20.4 | 194.9 | 1.980 | 14.480 | 2.030 | 0.690 | 2.120 | 0.720 |
| 210.0 | 20.4 | 209.9 | 2.570 | 23.840 | 2.310 | 0.720 | 3.490 | 0.650 |
| 225.0 | 20.4 | 225.0 | 2.210 | 22.470 | 1.800 | 0.750 | 4.890 | 0.580 |
| 240.0 | 20.4 | 240.2 | 3.020 | 24.120 | 1.830 | 0.830 | 6.950 | 0.540 |
| 255.0 | 20.4 | 255.1 | 2.780 | 17.810 | 1.250 | 0.890 | 4.570 | 0.340 |
| 270.0 | 20.4 | 270.1 | 3.270 | 15.910 | 0.530 | 0.930 | 3.770 | 0.140 |
| 285.0 | 20.4 | 285.0 | 3.860 | 14.830 | 1.560 | 0.950 | 3.190 | 0.450 |
| 300.0 | 20.4 | 299.9 | 3.650 | 13.290 | 2.760 | 0.940 | 2.800 | 0.740 |
| 315.0 | 20.3 | 314.8 | 3.050 | 11.060 | 3.050 | 0.910 | 2.060 | 0.910 |
| 330.0 | 20.3 | 329.8 | 3.270 | 9.490 | 3.380 | 0.880 | 1.370 | 0.990 |
| 345.0 | 20.3 | 344.8 | 3.010 | 6.910 | 3.390 | 0.860 | 0.670 | 1.030 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.13: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 3.390 | 6.600 | 3.760 | 0.910 | 0.550 | 1.010 |
| 15.0 | 25.4 | 15.0 | 3.360 | 7.930 | 3.890 | 0.920 | 1.110 | 1.000 |
| 30.0 | 25.4 | 30.0 | 3.100 | 10.200 | 3.260 | 0.920 | 1.780 | 0.970 |
| 45.0 | 25.4 | 45.0 | 3.400 | 11.090 | 3.070 | 0.930 | 2.420 | 0.890 |
| 60.0 | 25.4 | 60.0 | 3.700 | 14.030 | 2.630 | 0.930 | 3.170 | 0.740 |
| 75.0 | 25.4 | 74.9 | 3.210 | 11.410 | 1.560 | 0.900 | 2.370 | 0.470 |
| 90.0 | 25.4 | 89.9 | 3.440 | 13.090 | 0.590 | 0.860 | 2.750 | 0.170 |
| 105.0 | 25.4 | 104.8 | 2.910 | 17.330 | 1.070 | 0.820 | 3.460 | 0.280 |
| 120.0 | 25.4 | 119.9 | 2.380 | 27.860 | 2.030 | 0.780 | 8.310 | 0.490 |
| 135.0 | 25.4 | 134.9 | 2.300 | 15.920 | 1.490 | 0.710 | 5.550 | 0.550 |
| 150.0 | 25.4 | 149.9 | 2.030 | 13.790 | 1.720 | 0.670 | 3.680 | 0.610 |
| 165.0 | 25.5 | 164.9 | 2.220 | 11.250 | 2.280 | 0.840 | 2.220 | 0.770 |
| 180.0 | 25.6 | 179.9 | 1.860 | 9.130 | 1.990 | 0.490 | 0.740 | 0.590 |
| 195.0 | 25.5 | 195.0 | 2.560 | 16.980 | 2.190 | 0.860 | 2.260 | 0.770 |
| 210.0 | 25.5 | 210.0 | 2.000 | 22.240 | 2.010 | 0.710 | 3.890 | 0.610 |
| 225.0 | 25.4 | 225.0 | 2.260 | 27.080 | 1.770 | 0.740 | 5.630 | 0.570 |
| 240.0 | 25.4 | 240.0 | 2.340 | 24.110 | 1.470 | 0.790 | 6.690 | 0.460 |
| 255.0 | 25.4 | 255.0 | 3.320 | 17.520 | 1.170 | 0.860 | 4.370 | 0.330 |
| 270.0 | 25.4 | 270.0 | 3.340 | 16.310 | 0.610 | 0.900 | 3.600 | 0.170 |
| 285.0 | 25.4 | 285.0 | 3.160 | 14.070 | 1.530 | 0.940 | 3.040 | 0.450 |
| 300.0 | 25.4 | 299.9 | 3.320 | 13.850 | 2.590 | 0.960 | 2.680 | 0.730 |
| 315.0 | 25.4 | 314.9 | 3.440 | 11.480 | 3.000 | 0.950 | 1.870 | 0.880 |
| 330.0 | 25.4 | 329.9 | 3.100 | 9.510 | 3.040 | 0.930 | 1.180 | 0.960 |
| 345.0 | 25.4 | 344.9 | 3.500 | 7.360 | 3.860 | 0.920 | 0.580 | 1.000 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.14: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 3.540 | 7.290 | 3.540 | 0.970 | 0.610 | 0.980 |
| 15.0 | 30.5 | 15.0 | 3.500 | 8.680 | 3.280 | 0.970 | 1.110 | 0.970 |
| 30.0 | 30.5 | 30.0 | 3.540 | 10.050 | 3.310 | 0.970 | 1.720 | 0.940 |
| 45.0 | 30.5 | 45.0 | 3.110 | 12.600 | 3.020 | 0.970 | 2.410 | 0.870 |
| 60.0 | 30.5 | 60.0 | 3.100 | 14.660 | 2.380 | 0.960 | 3.220 | 0.730 |
| 75.0 | 30.5 | 75.0 | 3.080 | 10.800 | 1.640 | 0.900 | 2.260 | 0.470 |
| 90.0 | 30.5 | 89.9 | 3.270 | 12.570 | 0.660 | 0.830 | 2.730 | 0.190 |
| 105.0 | 30.5 | 104.9 | 2.630 | 16.100 | 0.930 | 0.780 | 3.710 | 0.260 |
| 120.0 | 30.5 | 119.9 | 2.540 | 21.530 | 1.410 | 0.710 | 7.400 | 0.390 |
| 135.0 | 30.5 | 134.9 | 2.320 | 21.790 | 1.810 | 0.510 | 4.940 | 0.450 |
| 150.0 | 30.6 | 149.9 | 1.790 | 14.190 | 1.770 | 0.630 | 3.510 | 0.620 |
| 165.0 | 30.6 | 164.9 | 1.790 | 11.240 | 2.020 | 0.630 | 1.940 | 0.680 |
| 180.0 | 31.0 | 179.9 | 1.680 | 12.830 | 2.020 | 0.650 | 1.220 | 0.670 |
| 195.0 | 30.6 | 194.9 | 1.690 | 16.060 | 1.830 | 0.610 | 2.280 | 0.650 |
| 210.0 | 30.6 | 210.0 | 1.800 | 18.470 | 1.780 | 0.630 | 3.670 | 0.600 |
| 225.0 | 30.5 | 225.0 | 1.670 | 23.960 | 1.360 | 0.560 | 5.110 | 0.460 |
| 240.0 | 30.5 | 240.1 | 2.480 | 33.680 | 1.760 | 0.760 | 8.160 | 0.470 |
| 255.0 | 30.5 | 255.0 | 2.800 | 17.460 | 1.090 | 0.830 | 3.980 | 0.320 |
| 270.0 | 30.5 | 270.0 | 2.900 | 15.740 | 0.690 | 0.880 | 3.270 | 0.190 |
| 285.0 | 30.5 | 285.0 | 3.350 | 15.070 | 1.560 | 0.930 | 2.860 | 0.450 |
| 300.0 | 30.5 | 299.9 | 3.410 | 13.860 | 2.230 | 0.970 | 2.520 | 0.710 |
| 315.0 | 30.5 | 314.9 | 3.570 | 12.970 | 2.760 | 0.980 | 1.730 | 0.850 |
| 330.0 | 30.5 | 329.9 | 3.850 | 9.740 | 3.340 | 0.980 | 1.090 | 0.930 |
| 345.0 | 30.5 | 344.9 | 3.510 | 7.960 | 3.150 | 0.970 | 0.560 | 0.970 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.15: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.1 | -18.2 | 2.410 | 14.030 | 7.230 | 0.650 | 3.010 | 1.670 |
| 15.0 | -0.3 | -12.9 | 2.240 | 11.690 | 5.690 | 0.620 | 2.510 | 1.650 |
| 30.0 | -0.6 | -3.0 | 2.060 | 12.340 | 5.870 | 0.600 | 2.390 | 1.630 |
| 45.0 | -0.9 | 7.5 | 2.280 | 14.340 | 5.870 | 0.610 | 3.110 | 1.620 |
| 60.0 | -1.2 | 18.4 | 2.850 | 20.240 | 5.710 | 0.690 | 4.450 | 1.620 |
| 75.0 | -1.6 | -14.9 | 3.960 | 24.860 | 5.450 | 0.890 | 6.670 | 1.540 |
| 90.0 | -1.5 | -5.5 | 4.090 | 24.480 | 5.200 | 0.880 | 6.690 | 1.530 |
| 105.0 | -1.3 | -6.7 | 3.600 | 24.470 | 5.410 | 0.860 | 6.460 | 1.550 |
| 120.0 | -1.3 | 47.4 | 4.750 | 33.040 | 5.360 | 1.060 | 7.110 | 1.180 |
| 135.0 | -3.0 | 105.0 | 4.960 | 27.950 | 4.420 | 1.170 | 6.370 | 1.080 |
| 150.0 | -3.7 | 109.0 | 3.970 | 22.290 | 5.600 | 1.120 | 6.130 | 1.220 |
| 165.0 | -4.0 | 106.1 | 4.310 | 37.600 | 4.580 | 1.140 | 6.280 | 1.180 |
| 180.0 | -0.2 | 328.0 | 2.680 | 21.680 | 6.300 | 0.680 | 4.480 | 1.580 |
| 195.0 | -0.2 | 16.8 | 3.670 | 16.910 | 6.170 | 0.750 | 4.070 | 1.640 |
| 210.0 | -0.2 | 385.8 | 3.640 | 19.510 | 6.200 | 0.810 | 4.240 | 1.650 |
| 225.0 | -0.1 | 392.3 | 4.070 | 19.160 | 5.610 | 0.870 | 4.780 | 1.660 |
| 240.0 | 0.0 | 393.2 | 3.730 | 18.490 | 5.760 | 0.970 | 5.050 | 1.630 |
| 255.0 | 0.0 | 386.6 | 3.940 | 19.200 | 5.150 | 1.070 | 5.870 | 1.560 |
| 270.0 | 0.5 | 300.2 | 3.690 | 19.960 | 4.860 | 1.090 | 4.960 | 1.530 |
| 285.0 | 0.3 | 303.6 | 4.930 | 21.140 | 5.020 | 1.030 | 4.870 | 1.620 |
| 300.0 | -0.0 | 309.2 | 4.270 | 20.290 | 5.160 | 0.960 | 5.080 | 1.660 |
| 315.0 | -0.1 | 315.9 | 4.000 | 19.620 | 5.900 | 0.860 | 4.780 | 1.710 |
| 330.0 | -0.3 | 325.3 | 3.740 | 17.480 | 6.030 | 0.780 | 4.050 | 1.690 |
| 345.0 | -0.1 | 333.7 | 2.580 | 14.860 | 6.220 | 0.700 | 3.350 | 1.670 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.16: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.1 | -10.0 | 2.080 | 14.660 | 6.080 | 0.620 | 2.310 | 1.650 |
| 15.0 | 4.0 | -2.0 | 1.910 | 10.290 | 6.110 | 0.610 | 2.030 | 1.630 |
| 30.0 | 3.9 | 8.0 | 2.080 | 12.120 | 5.440 | 0.610 | 2.280 | 1.630 |
| 45.0 | 3.8 | 19.0 | 2.310 | 14.480 | 6.430 | 0.650 | 2.900 | 1.630 |
| 60.0 | 3.8 | 31.1 | 2.950 | 17.000 | 6.100 | 0.720 | 3.580 | 1.650 |
| 75.0 | 3.7 | 38.8 | 2.940 | 19.380 | 5.640 | 0.780 | 4.060 | 1.650 |
| 90.0 | 3.7 | 46.5 | 3.450 | 21.820 | 5.480 | 0.870 | 4.510 | 1.620 |
| 105.0 | 3.7 | 48.9 | 3.840 | 30.690 | 5.230 | 0.890 | 4.690 | 1.610 |
| 120.0 | 3.7 | 46.7 | 3.270 | 28.730 | 5.110 | 0.870 | 4.810 | 1.610 |
| 135.0 | 3.7 | 43.4 | 3.180 | 20.510 | 5.270 | 0.830 | 4.160 | 1.640 |
| 150.0 | 3.8 | 45.4 | 4.740 | 19.270 | 5.190 | 0.830 | 4.390 | 1.630 |
| 165.0 | 3.8 | 49.5 | 4.570 | 21.110 | 4.980 | 0.820 | 4.230 | 1.650 |
| 180.0 | 4.7 | 178.6 | 2.000 | 12.810 | 3.780 | 0.560 | 2.490 | 1.210 |
| 195.0 | 4.6 | 197.3 | 2.020 | 13.220 | 3.870 | 0.610 | 3.010 | 1.260 |
| 210.0 | 4.1 | 368.4 | 4.470 | 15.480 | 6.240 | 0.750 | 3.880 | 1.630 |
| 225.0 | 4.5 | 295.9 | 4.150 | 17.860 | 5.030 | 1.110 | 4.830 | 1.460 |
| 240.0 | 4.7 | 286.9 | 4.480 | 19.900 | 4.550 | 1.270 | 5.020 | 1.230 |
| 255.0 | 4.5 | 289.3 | 4.410 | 20.700 | 4.150 | 1.260 | 5.020 | 1.290 |
| 270.0 | 4.4 | 292.8 | 4.400 | 16.550 | 4.770 | 1.210 | 4.790 | 1.410 |
| 285.0 | 4.5 | 295.6 | 4.620 | 17.940 | 4.440 | 1.160 | 4.990 | 1.500 |
| 300.0 | 4.7 | 302.6 | 4.250 | 18.890 | 5.110 | 1.040 | 4.520 | 1.650 |
| 315.0 | 4.7 | 314.4 | 3.120 | 18.190 | 5.830 | 0.880 | 3.840 | 1.730 |
| 330.0 | 4.6 | 327.1 | 2.660 | 16.130 | 5.750 | 0.750 | 3.210 | 1.710 |
| 345.0 | 4.4 | 340.0 | 2.150 | 12.740 | 5.980 | 0.660 | 2.630 | 1.670 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.17: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|-------------|------------------|------------------|----------|-----------|--------------------|----------|-----------|
| | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.8 | -1.2 | 2.520 | 9.660 | 5.330 | 0.700 | 1.390 | 1.610 |
| 15.0 | 9.7 | 13.7 | 2.370 | 9.810 | 5.450 | 0.710 | 1.500 | 1.610 |
| 30.0 | 9.7 | 28.7 | 2.950 | 13.420 | 5.840 | 0.780 | 2.200 | 1.640 |
| 45.0 | 9.7 | 43.7 | 3.210 | 16.040 | 5.660 | 0.890 | 2.840 | 1.660 |
| 60.0 | 9.7 | 58.2 | 3.730 | 18.520 | 5.090 | 1.050 | 3.530 | 1.580 |
| 75.0 | 9.7 | 71.6 | 4.270 | 20.040 | 4.170 | 1.220 | 4.140 | 1.270 |
| 90.0 | 9.0 | 81.8 | 5.040 | 24.410 | 2.950 | 1.290 | 4.770 | 0.720 |
| 105.0 | 8.6 | 88.7 | 4.960 | 37.890 | 2.950 | 1.280 | 5.980 | 0.390 |
| 120.0 | 8.4 | 100.7 | 4.780 | 27.500 | 3.640 | 1.170 | 6.260 | 0.740 |
| 135.0 | 8.9 | 125.6 | 3.530 | 23.020 | 3.800 | 0.850 | 5.520 | 1.150 |
| 150.0 | 9.4 | 145.7 | 1.900 | 21.210 | 3.480 | 0.650 | 6.160 | 1.110 |
| 165.0 | 9.6 | 162.0 | 1.650 | 23.800 | 3.240 | 0.560 | 6.340 | 1.050 |
| 180.0 | 9.9 | 178.3 | 1.530 | 21.590 | 3.030 | 0.540 | 5.320 | 1.040 |
| 195.0 | 10.0 | 194.6 | 1.620 | 16.070 | 3.080 | 0.570 | 3.960 | 1.080 |
| 210.0 | 9.8 | 211.5 | 1.990 | 16.660 | 3.430 | 0.660 | 5.380 | 1.150 |
| 225.0 | 9.3 | 231.7 | 3.400 | 20.380 | 4.170 | 0.880 | 5.740 | 1.220 |
| 240.0 | 8.5 | 259.3 | 4.320 | 34.160 | 4.070 | 1.250 | 5.930 | 0.920 |
| 255.0 | 8.6 | 269.8 | 5.130 | 34.080 | 3.690 | 1.370 | 5.530 | 0.520 |
| 270.0 | 9.2 | 277.4 | 4.820 | 22.050 | 2.780 | 1.400 | 4.710 | 0.670 |
| 285.0 | 10.0 | 287.5 | 4.870 | 16.730 | 4.270 | 1.310 | 4.030 | 1.270 |
| 300.0 | 10.0 | 300.3 | 3.660 | 17.420 | 5.220 | 1.130 | 3.770 | 1.610 |
| 315.0 | 9.8 | 314.3 | 3.890 | 18.500 | 5.860 | 0.940 | 3.160 | 1.690 |
| 330.0 | 9.8 | 329.1 | 2.820 | 16.230 | 5.670 | 0.810 | 2.210 | 1.670 |
| 345.0 | 9.8 | 343.9 | 2.710 | 10.950 | 5.360 | 0.720 | 1.640 | 1.630 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.18: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.0 | -0.5 | 3.140 | 10.500 | 5.150 | 0.810 | 1.200 | 1.560 |
| 15.0 | 15.0 | 14.6 | 2.880 | 9.460 | 5.310 | 0.830 | 1.400 | 1.570 |
| 30.0 | 15.0 | 29.6 | 2.810 | 10.460 | 4.880 | 0.900 | 1.770 | 1.610 |
| 45.0 | 15.0 | 44.7 | 3.320 | 13.760 | 5.140 | 1.010 | 2.390 | 1.620 |
| 60.0 | 15.0 | 59.4 | 4.390 | 20.510 | 5.410 | 1.150 | 3.060 | 1.530 |
| 75.0 | 15.1 | 73.7 | 4.620 | 21.010 | 4.130 | 1.270 | 3.360 | 1.180 |
| 90.0 | 14.9 | 87.7 | 4.440 | 24.290 | 2.760 | 1.270 | 4.400 | 0.340 |
| 105.0 | 14.8 | 102.4 | 4.810 | 29.930 | 2.510 | 1.110 | 5.930 | 0.660 |
| 120.0 | 14.6 | 116.8 | 3.900 | 25.700 | 3.630 | 0.920 | 7.380 | 0.900 |
| 135.0 | 15.0 | 133.5 | 2.160 | 25.360 | 3.030 | 0.730 | 8.320 | 0.960 |
| 150.0 | 15.0 | 149.2 | 1.870 | 20.330 | 2.810 | 0.620 | 6.430 | 0.950 |
| 165.0 | 15.0 | 164.1 | 1.670 | 20.670 | 2.410 | 0.540 | 3.950 | 0.900 |
| 180.0 | 15.0 | 179.2 | 1.930 | 20.930 | 3.220 | 0.560 | 3.490 | 1.030 |
| 195.0 | 15.1 | 194.4 | 1.600 | 22.520 | 2.610 | 0.520 | 4.160 | 0.870 |
| 210.0 | 15.1 | 209.7 | 2.130 | 23.040 | 3.270 | 0.600 | 6.150 | 0.960 |
| 225.0 | 15.0 | 226.3 | 2.950 | 23.720 | 3.920 | 0.770 | 8.790 | 1.060 |
| 240.0 | 14.6 | 243.5 | 4.730 | 25.020 | 4.510 | 0.990 | 7.850 | 1.010 |
| 255.0 | 14.5 | 258.6 | 4.620 | 32.300 | 3.440 | 1.230 | 6.480 | 0.750 |
| 270.0 | 14.8 | 272.6 | 4.880 | 21.060 | 2.060 | 1.380 | 5.250 | 0.350 |
| 285.0 | 15.2 | 286.1 | 4.440 | 18.120 | 4.250 | 1.360 | 3.860 | 1.190 |
| 300.0 | 15.1 | 300.0 | 4.870 | 15.440 | 5.880 | 1.210 | 3.310 | 1.550 |
| 315.0 | 15.0 | 314.6 | 3.540 | 13.470 | 5.230 | 1.050 | 2.580 | 1.650 |
| 330.0 | 15.0 | 329.5 | 2.830 | 12.840 | 5.010 | 0.920 | 1.970 | 1.620 |
| 345.0 | 15.0 | 344.5 | 2.950 | 10.720 | 5.370 | 0.840 | 1.380 | 1.590 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.19: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.2 | -0.2 | 3.180 | 9.320 | 4.990 | 0.940 | 1.110 | 1.510 |
| 15.0 | 20.2 | 14.8 | 3.280 | 9.690 | 5.280 | 0.960 | 1.280 | 1.520 |
| 30.0 | 20.2 | 29.9 | 3.720 | 12.670 | 5.110 | 1.020 | 1.700 | 1.550 |
| 45.0 | 20.2 | 44.9 | 3.920 | 16.430 | 5.000 | 1.120 | 2.190 | 1.560 |
| 60.0 | 20.2 | 59.7 | 3.830 | 16.580 | 4.580 | 1.230 | 2.760 | 1.480 |
| 75.0 | 20.3 | 74.2 | 4.400 | 21.920 | 4.050 | 1.300 | 3.110 | 1.140 |
| 90.0 | 20.2 | 88.7 | 4.430 | 25.150 | 1.680 | 1.230 | 4.130 | 0.290 |
| 105.0 | 20.1 | 103.7 | 5.530 | 29.970 | 2.620 | 1.050 | 6.530 | 0.620 |
| 120.0 | 20.2 | 118.8 | 2.850 | 29.590 | 2.970 | 0.840 | 10.490 | 0.770 |
| 135.0 | 20.2 | 134.7 | 1.950 | 24.760 | 2.630 | 0.590 | 7.860 | 0.680 |
| 150.0 | 20.3 | 149.6 | 1.830 | 20.070 | 2.470 | 0.570 | 5.820 | 0.850 |
| 165.0 | 20.1 | 164.5 | 1.420 | 22.470 | 2.480 | 0.500 | 3.600 | 0.850 |
| 180.0 | 20.6 | 179.5 | 1.280 | 24.840 | 2.570 | 0.530 | 3.500 | 0.830 |
| 195.0 | 20.1 | 194.4 | 1.630 | 27.270 | 2.920 | 0.560 | 5.050 | 0.890 |
| 210.0 | 20.2 | 209.9 | 1.600 | 32.560 | 2.940 | 0.620 | 7.450 | 0.960 |
| 225.0 | 20.0 | 225.5 | 2.140 | 33.460 | 2.980 | 0.700 | 10.620 | 0.950 |
| 240.0 | 20.2 | 241.0 | 2.960 | 34.500 | 3.460 | 0.920 | 11.640 | 0.950 |
| 255.0 | 19.9 | 256.9 | 4.590 | 29.860 | 2.850 | 1.160 | 7.620 | 0.710 |
| 270.0 | 20.1 | 271.4 | 4.800 | 23.190 | 2.050 | 1.350 | 5.680 | 0.310 |
| 285.0 | 20.3 | 285.7 | 4.680 | 15.160 | 3.970 | 1.390 | 4.110 | 1.140 |
| 300.0 | 20.3 | 300.0 | 4.230 | 13.530 | 4.660 | 1.290 | 3.220 | 1.490 |
| 315.0 | 20.2 | 314.8 | 4.170 | 14.370 | 5.340 | 1.150 | 2.490 | 1.570 |
| 330.0 | 20.2 | 329.7 | 3.630 | 11.400 | 5.380 | 1.040 | 1.860 | 1.560 |
| 345.0 | 20.2 | 344.8 | 3.460 | 9.030 | 5.340 | 0.970 | 1.320 | 1.520 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.20: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 3.680 | 10.340 | 4.630 | 1.050 | 1.160 | 1.430 |
| 15.0 | 25.4 | 14.9 | 3.470 | 10.890 | 4.400 | 1.070 | 1.310 | 1.450 |
| 30.0 | 25.4 | 29.9 | 3.840 | 14.120 | 4.890 | 1.130 | 1.710 | 1.490 |
| 45.0 | 25.3 | 44.9 | 4.390 | 15.460 | 5.210 | 1.210 | 2.190 | 1.500 |
| 60.0 | 25.3 | 59.8 | 4.170 | 18.820 | 4.130 | 1.300 | 2.800 | 1.430 |
| 75.0 | 25.3 | 74.5 | 4.550 | 21.170 | 3.500 | 1.330 | 3.050 | 1.100 |
| 90.0 | 25.3 | 89.2 | 4.250 | 22.180 | 2.070 | 1.200 | 4.100 | 0.290 |
| 105.0 | 25.2 | 104.2 | 4.490 | 39.580 | 3.770 | 1.000 | 8.340 | 0.610 |
| 120.0 | 25.2 | 119.7 | 2.990 | 34.920 | 3.250 | 0.800 | 13.500 | 0.730 |
| 135.0 | 25.2 | 134.7 | 1.460 | 26.470 | 2.690 | 0.570 | 9.540 | 0.760 |
| 150.0 | 25.1 | 149.8 | 1.800 | 23.430 | 2.560 | 0.550 | 6.170 | 0.810 |
| 165.0 | 25.8 | 164.4 | 1.460 | 22.750 | 2.180 | 0.520 | 3.250 | 0.810 |
| 180.0 | 25.6 | 179.8 | 1.590 | 22.640 | 2.670 | 0.480 | 3.270 | 0.770 |
| 195.0 | 25.7 | 195.1 | 1.340 | 24.970 | 2.510 | 0.510 | 4.450 | 0.800 |
| 210.0 | 25.4 | 210.0 | 1.870 | 29.360 | 2.970 | 0.570 | 6.840 | 0.840 |
| 225.0 | 25.2 | 225.3 | 1.690 | 40.650 | 3.040 | 0.600 | 10.760 | 0.830 |
| 240.0 | 25.2 | 240.5 | 3.410 | 39.210 | 3.320 | 0.800 | 13.720 | 0.770 |
| 255.0 | 25.2 | 255.9 | 4.330 | 30.350 | 3.020 | 1.110 | 8.650 | 0.700 |
| 270.0 | 25.3 | 270.9 | 4.370 | 20.820 | 1.530 | 1.310 | 6.050 | 0.320 |
| 285.0 | 25.4 | 285.5 | 4.840 | 15.180 | 3.690 | 1.410 | 4.260 | 1.100 |
| 300.0 | 25.4 | 300.1 | 4.070 | 14.090 | 4.480 | 1.350 | 3.520 | 1.430 |
| 315.0 | 25.4 | 314.9 | 4.160 | 13.330 | 5.300 | 1.240 | 2.670 | 1.500 |
| 330.0 | 25.4 | 329.9 | 3.780 | 11.590 | 5.010 | 1.140 | 1.830 | 1.480 |
| 345.0 | 25.4 | 344.9 | 3.460 | 9.720 | 4.650 | 1.070 | 1.290 | 1.450 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.21: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 3.890 | 11.070 | 4.700 | 1.120 | 1.280 | 1.360 |
| 15.0 | 30.5 | 15.0 | 3.670 | 11.770 | 4.630 | 1.140 | 1.350 | 1.380 |
| 30.0 | 30.5 | 30.0 | 3.780 | 16.050 | 4.600 | 1.200 | 1.820 | 1.420 |
| 45.0 | 30.5 | 44.9 | 4.590 | 19.390 | 4.880 | 1.280 | 2.360 | 1.440 |
| 60.0 | 30.4 | 59.8 | 4.420 | 20.070 | 4.190 | 1.360 | 2.850 | 1.380 |
| 75.0 | 30.4 | 74.6 | 5.180 | 21.560 | 3.830 | 1.360 | 3.090 | 1.080 |
| 90.0 | 30.4 | 89.4 | 4.350 | 22.260 | 1.460 | 1.170 | 4.100 | 0.300 |
| 105.0 | 30.3 | 104.5 | 3.840 | 35.100 | 3.470 | 0.950 | 10.250 | 0.570 |
| 120.0 | 30.1 | 119.7 | 3.040 | 38.040 | 3.090 | 0.880 | 15.960 | 0.880 |
| 135.0 | 30.2 | 135.0 | 2.490 | 30.640 | 2.930 | 0.630 | 9.070 | 0.840 |
| 150.0 | 30.9 | 148.9 | 1.680 | 27.460 | 3.250 | 0.570 | 6.070 | 0.830 |
| 165.0 | 31.3 | 164.3 | 1.420 | 25.540 | 2.870 | 0.430 | 4.080 | 0.700 |
| 180.0 | 30.3 | 179.5 | 1.570 | 28.670 | 2.530 | 0.500 | 4.760 | 0.800 |
| 195.0 | 31.3 | 195.1 | 1.400 | 25.400 | 2.710 | 0.420 | 5.450 | 0.670 |
| 210.0 | 31.0 | 210.7 | 1.780 | 25.050 | 2.600 | 0.550 | 7.050 | 0.790 |
| 225.0 | 30.3 | 225.1 | 2.350 | 34.090 | 3.420 | 0.650 | 9.580 | 0.900 |
| 240.0 | 30.2 | 240.6 | 4.080 | 42.680 | 3.270 | 0.820 | 15.100 | 0.880 |
| 255.0 | 30.3 | 255.5 | 4.770 | 46.490 | 4.500 | 1.060 | 10.640 | 0.710 |
| 270.0 | 30.4 | 270.6 | 4.270 | 22.390 | 1.320 | 1.270 | 5.890 | 0.340 |
| 285.0 | 30.5 | 285.4 | 5.650 | 20.610 | 4.110 | 1.430 | 4.940 | 1.070 |
| 300.0 | 30.5 | 300.1 | 4.520 | 15.970 | 4.660 | 1.410 | 4.020 | 1.370 |
| 315.0 | 30.5 | 315.1 | 4.450 | 15.310 | 4.790 | 1.310 | 3.150 | 1.430 |
| 330.0 | 30.5 | 330.0 | 3.930 | 11.540 | 4.820 | 1.210 | 2.050 | 1.410 |
| 345.0 | 30.5 | 345.0 | 3.810 | 10.560 | 4.870 | 1.150 | 1.480 | 1.370 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.22: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.2 | -19.6 | 4.170 | 12.320 | 5.000 | 1.180 | 3.160 | 1.510 |
| 15.0 | -0.4 | -11.2 | 3.860 | 11.070 | 5.110 | 1.150 | 2.700 | 1.530 |
| 30.0 | -0.6 | -1.8 | 3.660 | 12.250 | 5.660 | 1.140 | 2.610 | 1.530 |
| 45.0 | -0.4 | 17.6 | 4.150 | 17.130 | 5.610 | 1.140 | 3.810 | 1.480 |
| 60.0 | -0.1 | 40.8 | 4.350 | 21.120 | 4.720 | 1.210 | 5.190 | 1.310 |
| 75.0 | 0.1 | 57.8 | 4.600 | 22.860 | 4.120 | 1.290 | 5.710 | 1.050 |
| 90.0 | 0.1 | 74.2 | 5.100 | 19.620 | 3.020 | 1.370 | 5.790 | 0.630 |
| 105.0 | -0.2 | 93.6 | 5.200 | 20.020 | 1.440 | 1.410 | 6.070 | 0.250 |
| 120.0 | -0.6 | 104.0 | 5.570 | 22.930 | 2.640 | 1.380 | 6.240 | 0.570 |
| 135.0 | -1.1 | 111.6 | 5.080 | 21.930 | 3.250 | 1.350 | 6.190 | 0.800 |
| 150.0 | -1.5 | 118.3 | 4.160 | 20.400 | 3.580 | 1.310 | 6.050 | 0.980 |
| 165.0 | -1.8 | 124.3 | 4.080 | 18.780 | 4.200 | 1.280 | 5.750 | 1.110 |
| 180.0 | -1.3 | 86.0 | 4.400 | 16.020 | 4.440 | 1.220 | 5.580 | 1.330 |
| 195.0 | 0.0 | 358.1 | 4.410 | 15.480 | 4.710 | 1.250 | 4.910 | 1.370 |
| 210.0 | 0.3 | 252.3 | 4.660 | 19.420 | 3.480 | 1.440 | 5.790 | 0.780 |
| 225.0 | 0.1 | 258.0 | 5.420 | 19.770 | 3.380 | 1.470 | 5.810 | 0.610 |
| 240.0 | 0.0 | 265.7 | 5.830 | 18.770 | 2.700 | 1.500 | 5.770 | 0.390 |
| 255.0 | 0.1 | 275.9 | 5.790 | 18.850 | 1.980 | 1.500 | 5.590 | 0.350 |
| 270.0 | 0.2 | 287.1 | 5.750 | 18.720 | 2.600 | 1.470 | 5.360 | 0.680 |
| 285.0 | 0.2 | 296.8 | 5.110 | 18.740 | 3.020 | 1.410 | 5.180 | 0.960 |
| 300.0 | 0.2 | 305.4 | 4.680 | 17.410 | 3.940 | 1.360 | 5.000 | 1.160 |
| 315.0 | 0.2 | 314.1 | 4.420 | 16.350 | 4.420 | 1.300 | 4.730 | 1.300 |
| 330.0 | 0.1 | 322.8 | 4.340 | 18.150 | 4.600 | 1.260 | 4.330 | 1.400 |
| 345.0 | -0.1 | 331.6 | 4.530 | 15.150 | 4.510 | 1.210 | 3.800 | 1.460 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.23: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.2 | -13.9 | 4.500 | 13.420 | 5.130 | 1.160 | 3.090 | 1.540 |
| 15.0 | 4.1 | -5.4 | 4.410 | 12.300 | 4.710 | 1.140 | 2.720 | 1.550 |
| 30.0 | 4.0 | 5.6 | 4.260 | 12.960 | 5.230 | 1.140 | 2.820 | 1.540 |
| 45.0 | 4.1 | 24.0 | 4.100 | 16.250 | 5.660 | 1.160 | 3.760 | 1.470 |
| 60.0 | 4.2 | 43.6 | 4.440 | 18.070 | 4.850 | 1.240 | 4.780 | 1.320 |
| 75.0 | 4.3 | 58.6 | 4.530 | 18.810 | 3.610 | 1.300 | 5.190 | 1.060 |
| 90.0 | 4.3 | 73.3 | 4.830 | 18.280 | 2.300 | 1.370 | 5.350 | 0.650 |
| 105.0 | 4.3 | 89.5 | 5.390 | 21.940 | 1.300 | 1.390 | 5.650 | 0.180 |
| 120.0 | 4.2 | 100.7 | 5.090 | 21.520 | 2.610 | 1.380 | 5.810 | 0.430 |
| 135.0 | 4.0 | 109.6 | 4.570 | 21.520 | 3.300 | 1.340 | 5.780 | 0.690 |
| 150.0 | 3.9 | 116.9 | 4.790 | 20.280 | 4.090 | 1.310 | 5.690 | 0.860 |
| 165.0 | 3.8 | 128.1 | 4.200 | 20.110 | 4.420 | 1.250 | 5.180 | 1.050 |
| 180.0 | 3.9 | 149.1 | 4.060 | 14.990 | 4.360 | 1.160 | 3.690 | 1.250 |
| 195.0 | 4.7 | 194.1 | 3.760 | 12.450 | 4.500 | 1.130 | 3.130 | 1.320 |
| 210.0 | 4.6 | 213.1 | 4.090 | 14.750 | 4.220 | 1.200 | 4.140 | 1.260 |
| 225.0 | 4.5 | 232.8 | 5.140 | 17.010 | 4.620 | 1.310 | 4.950 | 1.100 |
| 240.0 | 4.5 | 248.1 | 5.060 | 20.180 | 3.330 | 1.400 | 5.360 | 0.810 |
| 255.0 | 4.7 | 260.6 | 5.010 | 16.660 | 1.810 | 1.460 | 5.450 | 0.440 |
| 270.0 | 4.8 | 273.8 | 5.050 | 19.030 | 1.240 | 1.490 | 5.270 | 0.190 |
| 285.0 | 4.9 | 287.5 | 5.860 | 18.560 | 2.200 | 1.460 | 4.930 | 0.680 |
| 300.0 | 4.9 | 300.8 | 5.040 | 16.690 | 4.170 | 1.380 | 4.610 | 1.080 |
| 315.0 | 4.9 | 313.9 | 4.520 | 15.460 | 4.080 | 1.300 | 4.210 | 1.320 |
| 330.0 | 4.7 | 326.7 | 4.930 | 15.030 | 5.030 | 1.230 | 3.740 | 1.450 |
| 345.0 | 4.5 | 338.6 | 4.570 | 15.580 | 5.280 | 1.180 | 3.330 | 1.520 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.24: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.9 | -1.3 | 4.470 | 10.460 | 6.030 | 1.160 | 1.230 | 1.550 |
| 15.0 | 9.9 | 13.8 | 4.560 | 11.390 | 6.000 | 1.170 | 1.970 | 1.530 |
| 30.0 | 9.9 | 28.9 | 4.070 | 13.230 | 4.880 | 1.190 | 2.850 | 1.460 |
| 45.0 | 9.9 | 43.9 | 4.880 | 16.430 | 4.620 | 1.250 | 3.480 | 1.330 |
| 60.0 | 10.0 | 58.7 | 4.790 | 17.120 | 3.300 | 1.310 | 3.880 | 1.080 |
| 75.0 | 10.1 | 73.5 | 4.870 | 19.400 | 2.350 | 1.370 | 4.130 | 0.670 |
| 90.0 | 10.0 | 88.3 | 4.620 | 19.190 | 0.640 | 1.380 | 4.630 | 0.150 |
| 105.0 | 10.0 | 103.2 | 4.620 | 20.210 | 1.500 | 1.340 | 5.050 | 0.430 |
| 120.0 | 9.7 | 117.3 | 4.450 | 21.560 | 3.010 | 1.280 | 5.040 | 0.770 |
| 135.0 | 9.7 | 132.1 | 4.390 | 19.800 | 3.730 | 1.200 | 4.560 | 0.980 |
| 150.0 | 9.7 | 147.6 | 3.770 | 18.740 | 3.670 | 1.130 | 4.510 | 1.090 |
| 165.0 | 9.8 | 163.1 | 3.730 | 18.650 | 4.030 | 1.090 | 4.220 | 1.160 |
| 180.0 | 9.9 | 178.6 | 3.490 | 16.060 | 3.770 | 1.090 | 3.430 | 1.210 |
| 195.0 | 10.0 | 194.3 | 3.660 | 13.920 | 3.900 | 1.110 | 3.350 | 1.200 |
| 210.0 | 9.9 | 210.5 | 3.860 | 14.460 | 3.820 | 1.170 | 4.570 | 1.170 |
| 225.0 | 9.8 | 226.6 | 4.360 | 15.180 | 3.780 | 1.250 | 5.510 | 1.070 |
| 240.0 | 9.8 | 242.1 | 4.530 | 15.810 | 2.940 | 1.350 | 5.860 | 0.860 |
| 255.0 | 10.0 | 256.5 | 5.250 | 17.950 | 1.660 | 1.430 | 5.810 | 0.510 |
| 270.0 | 10.1 | 271.0 | 5.350 | 18.240 | 0.720 | 1.470 | 5.390 | 0.130 |
| 285.0 | 10.1 | 285.5 | 5.590 | 17.270 | 2.260 | 1.450 | 4.790 | 0.620 |
| 300.0 | 10.1 | 300.0 | 5.210 | 16.290 | 3.590 | 1.390 | 4.120 | 1.060 |
| 315.0 | 10.0 | 314.3 | 4.070 | 15.110 | 4.490 | 1.310 | 3.390 | 1.320 |
| 330.0 | 9.9 | 329.0 | 4.480 | 12.430 | 5.050 | 1.230 | 2.530 | 1.460 |
| 345.0 | 9.9 | 343.8 | 4.680 | 11.550 | 5.570 | 1.190 | 1.710 | 1.530 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.25: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.1 | -0.5 | 3.780 | 8.760 | 4.710 | 1.210 | 1.020 | 1.520 |
| 15.0 | 15.1 | 14.6 | 4.250 | 11.070 | 4.990 | 1.220 | 1.740 | 1.500 |
| 30.0 | 15.1 | 29.7 | 5.210 | 12.930 | 5.350 | 1.250 | 2.610 | 1.440 |
| 45.0 | 15.1 | 44.7 | 4.960 | 15.300 | 4.960 | 1.290 | 3.250 | 1.310 |
| 60.0 | 15.1 | 59.5 | 4.360 | 16.350 | 3.460 | 1.340 | 3.740 | 1.060 |
| 75.0 | 15.2 | 74.4 | 5.280 | 17.510 | 2.420 | 1.360 | 3.660 | 0.660 |
| 90.0 | 15.2 | 89.3 | 4.610 | 18.760 | 0.670 | 1.350 | 4.190 | 0.180 |
| 105.0 | 15.2 | 104.2 | 4.730 | 22.000 | 1.480 | 1.310 | 4.870 | 0.420 |
| 120.0 | 15.1 | 118.8 | 3.950 | 25.960 | 2.630 | 1.240 | 5.950 | 0.710 |
| 135.0 | 15.0 | 134.0 | 4.340 | 24.400 | 3.340 | 1.150 | 6.220 | 0.880 |
| 150.0 | 15.1 | 149.3 | 3.260 | 18.500 | 3.310 | 1.110 | 4.450 | 0.990 |
| 165.0 | 15.2 | 164.4 | 3.040 | 14.200 | 2.840 | 1.070 | 2.360 | 1.000 |
| 180.0 | 15.1 | 179.4 | 3.070 | 12.780 | 3.230 | 1.060 | 2.210 | 1.050 |
| 195.0 | 15.1 | 194.6 | 3.160 | 19.500 | 3.430 | 1.090 | 3.390 | 1.100 |
| 210.0 | 15.1 | 209.9 | 3.280 | 20.860 | 3.350 | 1.130 | 5.180 | 1.060 |
| 225.0 | 15.1 | 225.6 | 4.390 | 20.840 | 3.360 | 1.190 | 7.420 | 0.980 |
| 240.0 | 15.1 | 241.0 | 4.590 | 20.450 | 3.130 | 1.300 | 7.290 | 0.800 |
| 255.0 | 15.2 | 255.6 | 5.080 | 20.020 | 1.700 | 1.390 | 6.500 | 0.500 |
| 270.0 | 15.2 | 270.4 | 4.950 | 20.390 | 0.720 | 1.440 | 5.740 | 0.170 |
| 285.0 | 15.2 | 285.2 | 6.210 | 18.490 | 2.060 | 1.440 | 4.990 | 0.610 |
| 300.0 | 15.2 | 299.8 | 5.210 | 17.040 | 3.380 | 1.400 | 4.070 | 1.050 |
| 315.0 | 15.1 | 314.5 | 5.320 | 14.580 | 4.840 | 1.330 | 3.070 | 1.300 |
| 330.0 | 15.1 | 329.4 | 4.970 | 12.600 | 4.910 | 1.270 | 2.180 | 1.440 |
| 345.0 | 15.1 | 344.4 | 4.210 | 10.330 | 4.890 | 1.240 | 1.330 | 1.510 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.26: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.2 | -0.2 | 4.210 | 9.670 | 4.750 | 1.280 | 1.080 | 1.480 |
| 15.0 | 20.2 | 14.9 | 4.510 | 11.220 | 4.590 | 1.290 | 1.840 | 1.470 |
| 30.0 | 20.2 | 29.9 | 4.580 | 13.890 | 4.860 | 1.300 | 2.680 | 1.410 |
| 45.0 | 20.3 | 44.9 | 4.430 | 14.910 | 4.400 | 1.330 | 3.400 | 1.280 |
| 60.0 | 20.3 | 59.8 | 5.240 | 18.210 | 3.990 | 1.350 | 4.070 | 1.050 |
| 75.0 | 20.3 | 74.7 | 4.990 | 16.830 | 2.030 | 1.340 | 3.510 | 0.660 |
| 90.0 | 20.3 | 89.6 | 4.610 | 18.020 | 0.840 | 1.310 | 3.990 | 0.220 |
| 105.0 | 20.3 | 104.6 | 4.170 | 23.790 | 1.520 | 1.270 | 4.840 | 0.400 |
| 120.0 | 20.3 | 119.4 | 4.660 | 27.590 | 2.310 | 1.190 | 7.990 | 0.670 |
| 135.0 | 20.2 | 134.7 | 3.510 | 23.250 | 2.730 | 1.140 | 7.510 | 0.890 |
| 150.0 | 20.2 | 149.6 | 3.480 | 17.810 | 3.240 | 1.140 | 5.070 | 1.090 |
| 165.0 | 20.3 | 164.7 | 3.460 | 13.640 | 3.180 | 1.040 | 2.400 | 0.970 |
| 180.0 | 20.3 | 179.7 | 3.120 | 15.460 | 3.450 | 1.000 | 2.070 | 1.010 |
| 195.0 | 20.3 | 194.8 | 3.790 | 26.650 | 3.620 | 1.110 | 3.820 | 1.090 |
| 210.0 | 20.2 | 210.0 | 3.730 | 30.480 | 3.150 | 1.200 | 6.360 | 1.150 |
| 225.0 | 20.3 | 224.9 | 3.330 | 30.380 | 2.770 | 1.140 | 7.040 | 0.840 |
| 240.0 | 20.3 | 240.5 | 4.770 | 27.280 | 2.580 | 1.260 | 9.220 | 0.770 |
| 255.0 | 20.3 | 255.3 | 4.930 | 24.250 | 1.690 | 1.350 | 6.890 | 0.480 |
| 270.0 | 20.3 | 270.2 | 5.130 | 21.550 | 0.830 | 1.410 | 5.930 | 0.210 |
| 285.0 | 20.3 | 285.1 | 5.530 | 19.940 | 2.160 | 1.430 | 5.120 | 0.610 |
| 300.0 | 20.3 | 299.8 | 5.800 | 19.850 | 3.790 | 1.410 | 4.040 | 1.030 |
| 315.0 | 20.3 | 314.7 | 4.530 | 16.080 | 4.390 | 1.380 | 2.940 | 1.280 |
| 330.0 | 20.2 | 329.6 | 5.370 | 13.430 | 4.660 | 1.330 | 2.010 | 1.400 |
| 345.0 | 20.2 | 344.7 | 4.210 | 10.700 | 4.680 | 1.300 | 1.140 | 1.470 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.27: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.3 | -0.1 | 5.400 | 10.840 | 5.190 | 1.360 | 1.230 | 1.440 |
| 15.0 | 25.3 | 15.0 | 4.990 | 12.280 | 5.140 | 1.360 | 1.920 | 1.430 |
| 30.0 | 25.3 | 30.0 | 4.810 | 14.410 | 4.500 | 1.370 | 2.770 | 1.370 |
| 45.0 | 25.4 | 45.0 | 5.300 | 16.270 | 4.460 | 1.380 | 3.580 | 1.260 |
| 60.0 | 25.4 | 60.0 | 5.200 | 19.000 | 3.440 | 1.370 | 4.340 | 1.040 |
| 75.0 | 25.4 | 74.8 | 5.650 | 19.560 | 2.420 | 1.330 | 3.510 | 0.670 |
| 90.0 | 25.4 | 89.7 | 4.590 | 18.570 | 0.960 | 1.270 | 4.030 | 0.250 |
| 105.0 | 25.4 | 104.8 | 4.680 | 23.660 | 1.430 | 1.220 | 4.960 | 0.370 |
| 120.0 | 25.3 | 119.8 | 4.480 | 32.560 | 2.710 | 1.160 | 9.720 | 0.640 |
| 135.0 | 25.3 | 134.8 | 3.560 | 23.450 | 2.500 | 1.110 | 7.410 | 0.810 |
| 150.0 | 25.4 | 149.7 | 2.890 | 21.890 | 2.850 | 0.920 | 5.070 | 0.850 |
| 165.0 | 25.6 | 164.8 | 2.350 | 13.630 | 2.420 | 0.810 | 2.330 | 0.820 |
| 180.0 | 25.6 | 179.8 | 3.620 | 15.360 | 3.230 | 1.290 | 1.800 | 1.100 |
| 195.0 | 25.6 | 195.0 | 2.060 | 17.980 | 2.240 | 0.670 | 2.500 | 0.770 |
| 210.0 | 25.4 | 210.1 | 3.310 | 31.130 | 2.910 | 1.270 | 6.480 | 1.040 |
| 225.0 | 25.3 | 225.2 | 3.710 | 39.620 | 2.960 | 1.210 | 9.200 | 0.980 |
| 240.0 | 25.4 | 240.2 | 3.900 | 35.770 | 2.470 | 1.210 | 9.630 | 0.700 |
| 255.0 | 25.4 | 255.1 | 5.120 | 28.180 | 1.700 | 1.320 | 6.890 | 0.470 |
| 270.0 | 25.4 | 270.1 | 4.980 | 25.180 | 0.940 | 1.380 | 5.880 | 0.250 |
| 285.0 | 25.4 | 285.0 | 5.330 | 23.130 | 2.130 | 1.420 | 5.170 | 0.620 |
| 300.0 | 25.4 | 299.8 | 5.880 | 18.740 | 3.410 | 1.430 | 3.860 | 1.010 |
| 315.0 | 25.4 | 314.8 | 5.420 | 17.510 | 4.090 | 1.420 | 2.700 | 1.240 |
| 330.0 | 25.3 | 329.8 | 4.670 | 14.100 | 4.290 | 1.390 | 1.750 | 1.360 |
| 345.0 | 25.3 | 344.8 | 4.900 | 11.040 | 4.960 | 1.370 | 1.100 | 1.420 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.28: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 5.130 | 11.800 | 4.600 | 1.430 | 1.380 | 1.390 |
| 15.0 | 30.5 | 15.0 | 5.220 | 13.620 | 4.380 | 1.430 | 2.020 | 1.380 |
| 30.0 | 30.5 | 30.1 | 5.600 | 14.690 | 4.770 | 1.430 | 2.780 | 1.330 |
| 45.0 | 30.5 | 45.1 | 4.940 | 16.980 | 4.250 | 1.420 | 3.660 | 1.230 |
| 60.0 | 30.4 | 60.0 | 4.830 | 19.830 | 3.150 | 1.400 | 4.640 | 1.020 |
| 75.0 | 30.5 | 74.9 | 4.420 | 16.670 | 2.150 | 1.320 | 3.590 | 0.670 |
| 90.0 | 30.5 | 89.8 | 4.730 | 20.710 | 1.130 | 1.240 | 4.290 | 0.290 |
| 105.0 | 30.5 | 104.8 | 4.060 | 21.610 | 1.350 | 1.180 | 5.430 | 0.350 |
| 120.0 | 30.4 | 119.9 | 3.670 | 31.870 | 2.330 | 1.150 | 11.460 | 0.670 |
| 135.0 | 30.4 | 134.8 | 3.660 | 29.560 | 2.890 | 1.200 | 8.990 | 0.870 |
| 150.0 | 30.8 | 149.6 | 2.920 | 19.560 | 2.970 | 0.840 | 4.520 | 0.850 |
| 165.0 | 30.8 | 164.7 | 3.030 | 15.720 | 3.870 | 1.000 | 2.760 | 0.980 |
| 180.0 | 30.5 | 179.7 | 2.680 | 22.230 | 2.750 | 1.000 | 2.550 | 1.020 |
| 195.0 | 30.9 | 195.0 | 2.930 | 22.310 | 3.030 | 0.990 | 3.470 | 0.960 |
| 210.0 | 30.7 | 210.1 | 2.520 | 22.990 | 2.590 | 0.880 | 5.110 | 0.820 |
| 225.0 | 30.4 | 225.1 | 2.980 | 33.760 | 2.140 | 1.170 | 8.260 | 0.800 |
| 240.0 | 30.4 | 240.1 | 3.310 | 36.770 | 1.960 | 1.150 | 9.730 | 0.620 |
| 255.0 | 30.5 | 255.1 | 4.530 | 30.530 | 1.590 | 1.270 | 6.450 | 0.460 |
| 270.0 | 30.5 | 270.0 | 4.750 | 24.900 | 1.050 | 1.340 | 5.460 | 0.290 |
| 285.0 | 30.5 | 285.0 | 4.620 | 23.520 | 2.170 | 1.400 | 5.000 | 0.620 |
| 300.0 | 30.5 | 299.9 | 5.330 | 19.520 | 3.130 | 1.450 | 3.620 | 0.990 |
| 315.0 | 30.5 | 314.9 | 5.090 | 18.380 | 4.040 | 1.460 | 2.560 | 1.200 |
| 330.0 | 30.5 | 329.9 | 5.450 | 14.490 | 4.810 | 1.450 | 1.690 | 1.320 |
| 345.0 | 30.5 | 344.9 | 5.200 | 12.370 | 4.480 | 1.440 | 1.240 | 1.370 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.29: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|------------------|-------------------------|----------|-----------|---------------------------|----------|-----------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -1.0 | -32.0 | 5.530 | 24.400 | 7.550 | 1.570 | 6.800 | 2.400 |
| 15.0 | -1.6 | -24.8 | 5.480 | 22.120 | 9.430 | 1.520 | 6.740 | 2.440 |
| 30.0 | -3.1 | -86.6 | 6.500 | 40.050 | 9.070 | 1.640 | 9.770 | 2.100 |
| 45.0 | -3.0 | -71.3 | 6.270 | 33.460 | 7.930 | 1.690 | 10.140 | 1.980 |
| 60.0 | -2.5 | -84.7 | 7.070 | 33.120 | 8.080 | 1.840 | 10.210 | 1.530 |
| 75.0 | -0.5 | -74.5 | 7.360 | 39.000 | 7.660 | 1.920 | 9.900 | 1.070 |
| 90.0 | 0.2 | 62.4 | 6.650 | 31.860 | 5.920 | 1.770 | 8.390 | 1.740 |
| 105.0 | 0.3 | 87.5 | 7.780 | 32.570 | 4.210 | 1.970 | 9.060 | 0.700 |
| 120.0 | -2.6 | 104.1 | 7.880 | 32.110 | 4.970 | 1.920 | 9.500 | 1.180 |
| 135.0 | -3.6 | 108.0 | 8.380 | 33.840 | 5.460 | 1.890 | 9.310 | 1.400 |
| 150.0 | -4.1 | 81.2 | 6.390 | 29.210 | 9.470 | 1.770 | 10.270 | 1.770 |
| 165.0 | -2.9 | 44.8 | 7.540 | 32.220 | 8.420 | 1.660 | 9.120 | 2.170 |
| 180.0 | -1.0 | 11.2 | 5.440 | 23.570 | 8.470 | 1.560 | 7.420 | 2.380 |
| 195.0 | -0.3 | 31.9 | 6.050 | 30.900 | 7.570 | 1.660 | 7.630 | 2.330 |
| 210.0 | 0.2 | 39.3 | 7.160 | 26.900 | 6.860 | 1.750 | 7.830 | 2.240 |
| 225.0 | 0.4 | 273.9 | 8.100 | 32.180 | 5.490 | 2.150 | 8.980 | 0.920 |
| 240.0 | -0.1 | 274.4 | 8.080 | 33.160 | 4.200 | 2.190 | 9.030 | 0.760 |
| 255.0 | 0.5 | 282.3 | 7.970 | 32.860 | 4.940 | 2.160 | 8.610 | 1.100 |
| 270.0 | 0.7 | 288.3 | 7.860 | 29.440 | 5.400 | 2.110 | 8.520 | 1.450 |
| 285.0 | 0.7 | 294.8 | 8.380 | 27.780 | 5.540 | 2.010 | 8.130 | 1.780 |
| 300.0 | 0.5 | 299.8 | 7.020 | 28.780 | 6.940 | 1.910 | 7.950 | 1.980 |
| 315.0 | 0.5 | 306.0 | 7.440 | 28.850 | 7.000 | 1.820 | 7.730 | 2.160 |
| 330.0 | 0.2 | 311.9 | 7.240 | 30.530 | 7.750 | 1.740 | 7.860 | 2.260 |
| 345.0 | -0.0 | 319.7 | 6.980 | 25.210 | 8.310 | 1.650 | 7.120 | 2.370 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.30: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 3.6 | -32.7 | 6.140 | 24.550 | 7.840 | 1.580 | 7.010 | 2.450 |
| 15.0 | 3.4 | -24.6 | 5.560 | 23.800 | 8.240 | 1.510 | 6.580 | 2.480 |
| 30.0 | 3.3 | -17.7 | 5.250 | 22.200 | 8.200 | 1.450 | 6.390 | 2.500 |
| 45.0 | 3.1 | -10.1 | 5.220 | 23.980 | 8.150 | 1.430 | 6.280 | 2.500 |
| 60.0 | 3.1 | -0.1 | 4.550 | 24.380 | 9.640 | 1.430 | 6.160 | 2.480 |
| 75.0 | 3.2 | 11.7 | 5.360 | 26.510 | 8.410 | 1.470 | 6.800 | 2.400 |
| 90.0 | 3.5 | 35.9 | 5.820 | 28.800 | 8.460 | 1.610 | 7.830 | 2.190 |
| 105.0 | 3.3 | 33.0 | 6.420 | 38.070 | 8.680 | 1.580 | 7.740 | 2.230 |
| 120.0 | 3.7 | 64.9 | 7.540 | 35.130 | 8.380 | 1.810 | 8.740 | 1.620 |
| 135.0 | 3.2 | 33.9 | 5.820 | 45.140 | 8.240 | 1.570 | 7.500 | 2.280 |
| 150.0 | 3.3 | 43.2 | 6.610 | 28.610 | 7.770 | 1.610 | 7.660 | 2.250 |
| 165.0 | 3.4 | 43.8 | 5.540 | 23.830 | 8.040 | 1.620 | 7.310 | 2.320 |
| 180.0 | 3.8 | 96.3 | 6.250 | 24.560 | 7.250 | 1.540 | 8.750 | 2.230 |
| 195.0 | 3.9 | 15.4 | 5.640 | 26.970 | 7.940 | 1.650 | 8.210 | 2.310 |
| 210.0 | 4.1 | 30.3 | 5.710 | 27.820 | 7.780 | 1.730 | 8.030 | 2.250 |
| 225.0 | 4.5 | 276.9 | 8.500 | 34.160 | 6.610 | 2.140 | 8.720 | 0.920 |
| 240.0 | 4.4 | 278.6 | 8.000 | 32.750 | 4.860 | 2.160 | 8.430 | 0.930 |
| 255.0 | 4.3 | 282.7 | 8.210 | 31.270 | 5.240 | 2.140 | 8.400 | 1.100 |
| 270.0 | 4.4 | 288.0 | 8.740 | 29.270 | 5.380 | 2.100 | 7.820 | 1.430 |
| 285.0 | 4.5 | 293.0 | 7.260 | 28.390 | 8.040 | 2.030 | 7.380 | 1.730 |
| 300.0 | 4.6 | 300.8 | 7.000 | 26.270 | 6.640 | 1.910 | 7.170 | 2.040 |
| 315.0 | 4.4 | 308.9 | 6.670 | 30.410 | 6.480 | 1.790 | 7.600 | 2.240 |
| 330.0 | 4.1 | 315.7 | 6.460 | 27.460 | 7.000 | 1.710 | 7.350 | 2.330 |
| 345.0 | 3.9 | 321.6 | 5.920 | 26.470 | 8.420 | 1.640 | 7.260 | 2.410 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.31: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 8.9 | -5.5 | 6.110 | 21.580 | 9.010 | 1.460 | 4.180 | 2.500 |
| 15.0 | 8.6 | 8.2 | 5.400 | 21.390 | 8.770 | 1.440 | 4.360 | 2.480 |
| 30.0 | 8.9 | 25.0 | 5.630 | 22.040 | 8.560 | 1.500 | 4.930 | 2.420 |
| 45.0 | 9.1 | 41.0 | 5.120 | 24.590 | 7.450 | 1.620 | 5.690 | 2.310 |
| 60.0 | 9.3 | 56.0 | 6.510 | 25.920 | 6.480 | 1.760 | 6.120 | 2.040 |
| 75.0 | 9.6 | 70.8 | 7.450 | 30.290 | 6.290 | 1.910 | 6.600 | 1.500 |
| 90.0 | 9.2 | 82.7 | 7.290 | 29.600 | 2.920 | 1.980 | 7.980 | 0.710 |
| 105.0 | 8.9 | 94.7 | 7.650 | 36.570 | 3.300 | 1.940 | 8.830 | 0.520 |
| 120.0 | 8.4 | 107.6 | 7.680 | 38.840 | 4.090 | 1.820 | 8.540 | 1.070 |
| 135.0 | 8.3 | 120.1 | 5.870 | 32.350 | 5.120 | 1.670 | 7.740 | 1.420 |
| 150.0 | 8.3 | 135.6 | 5.830 | 28.220 | 5.700 | 1.500 | 7.090 | 1.650 |
| 165.0 | 8.6 | 154.1 | 4.940 | 27.050 | 5.920 | 1.340 | 7.280 | 1.710 |
| 180.0 | 9.4 | 176.8 | 3.300 | 26.060 | 5.650 | 1.260 | 6.650 | 1.790 |
| 195.0 | 9.5 | 196.0 | 4.980 | 24.470 | 7.120 | 1.330 | 5.910 | 1.830 |
| 210.0 | 9.0 | 219.7 | 5.400 | 25.650 | 5.650 | 1.550 | 7.180 | 1.850 |
| 225.0 | 8.3 | 253.8 | 8.840 | 45.720 | 5.860 | 1.980 | 8.790 | 1.240 |
| 240.0 | 8.4 | 263.7 | 9.080 | 43.660 | 5.050 | 2.100 | 9.050 | 0.830 |
| 255.0 | 8.6 | 271.4 | 9.100 | 37.930 | 3.620 | 2.150 | 8.790 | 0.640 |
| 270.0 | 8.9 | 278.8 | 9.170 | 35.610 | 5.360 | 2.160 | 8.390 | 0.830 |
| 285.0 | 9.7 | 288.4 | 7.360 | 31.190 | 4.780 | 2.110 | 7.460 | 1.470 |
| 300.0 | 9.8 | 300.2 | 6.780 | 26.380 | 6.930 | 1.950 | 6.400 | 2.010 |
| 315.0 | 9.6 | 313.2 | 5.820 | 27.610 | 7.140 | 1.770 | 5.820 | 2.300 |
| 330.0 | 9.4 | 326.9 | 5.920 | 26.210 | 8.590 | 1.620 | 5.350 | 2.440 |
| 345.0 | 9.1 | 340.6 | 6.320 | 24.480 | 8.700 | 1.510 | 4.790 | 2.500 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.32: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 14.7 | -1.3 | 5.930 | 19.580 | 7.750 | 1.580 | 2.940 | 2.430 |
| 15.0 | 14.7 | 13.9 | 5.860 | 18.060 | 7.510 | 1.590 | 3.300 | 2.410 |
| 30.0 | 14.7 | 29.1 | 5.080 | 19.890 | 6.830 | 1.650 | 3.920 | 2.360 |
| 45.0 | 14.8 | 44.3 | 7.040 | 23.380 | 7.620 | 1.740 | 4.460 | 2.220 |
| 60.0 | 14.9 | 58.9 | 6.270 | 27.550 | 6.530 | 1.860 | 5.200 | 1.950 |
| 75.0 | 15.0 | 73.3 | 7.710 | 28.630 | 4.130 | 1.950 | 5.930 | 1.380 |
| 90.0 | 14.9 | 87.8 | 7.390 | 30.800 | 2.420 | 1.930 | 7.560 | 0.410 |
| 105.0 | 14.9 | 102.9 | 7.850 | 39.410 | 3.020 | 1.820 | 8.730 | 0.740 |
| 120.0 | 14.4 | 116.4 | 5.660 | 30.610 | 3.880 | 1.640 | 8.230 | 1.140 |
| 135.0 | 14.4 | 131.7 | 4.580 | 29.530 | 4.590 | 1.470 | 8.720 | 1.350 |
| 150.0 | 15.1 | 148.7 | 3.750 | 25.800 | 5.130 | 1.350 | 7.170 | 1.480 |
| 165.0 | 15.0 | 163.5 | 3.880 | 26.070 | 5.290 | 1.250 | 4.750 | 1.450 |
| 180.0 | 14.7 | 178.5 | 3.750 | 24.490 | 4.780 | 1.220 | 5.040 | 1.510 |
| 195.0 | 14.7 | 194.2 | 3.590 | 28.910 | 5.400 | 1.250 | 6.080 | 1.590 |
| 210.0 | 15.0 | 209.9 | 4.000 | 30.450 | 4.850 | 1.370 | 7.480 | 1.610 |
| 225.0 | 14.4 | 229.8 | 7.940 | 40.220 | 7.770 | 1.580 | 10.240 | 1.460 |
| 240.0 | 14.0 | 247.1 | 8.720 | 39.730 | 5.230 | 1.860 | 10.310 | 1.280 |
| 255.0 | 14.2 | 260.4 | 10.100 | 51.540 | 3.110 | 2.030 | 10.110 | 0.800 |
| 270.0 | 14.6 | 273.5 | 8.130 | 32.610 | 2.360 | 2.140 | 9.080 | 0.490 |
| 285.0 | 15.0 | 286.7 | 8.010 | 30.940 | 4.700 | 2.130 | 7.880 | 1.360 |
| 300.0 | 15.0 | 300.0 | 7.800 | 24.250 | 6.740 | 2.010 | 6.170 | 1.960 |
| 315.0 | 14.9 | 314.0 | 7.200 | 25.860 | 7.680 | 1.850 | 4.910 | 2.240 |
| 330.0 | 14.8 | 328.7 | 5.980 | 21.760 | 7.060 | 1.710 | 3.980 | 2.380 |
| 345.0 | 14.7 | 343.6 | 5.870 | 20.180 | 8.200 | 1.620 | 3.350 | 2.420 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.33: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.0 | -0.5 | 6.360 | 15.740 | 7.510 | 1.730 | 2.640 | 2.320 |
| 15.0 | 20.0 | 14.6 | 6.140 | 17.050 | 7.170 | 1.740 | 3.070 | 2.310 |
| 30.0 | 20.0 | 29.8 | 6.200 | 19.340 | 6.810 | 1.780 | 3.600 | 2.270 |
| 45.0 | 20.0 | 44.8 | 6.380 | 24.130 | 6.740 | 1.850 | 4.150 | 2.150 |
| 60.0 | 20.1 | 59.5 | 7.680 | 25.960 | 6.170 | 1.930 | 4.760 | 1.900 |
| 75.0 | 20.2 | 74.0 | 8.350 | 32.860 | 4.780 | 1.960 | 5.770 | 1.340 |
| 90.0 | 20.1 | 88.7 | 7.240 | 31.020 | 2.390 | 1.880 | 7.490 | 0.400 |
| 105.0 | 20.1 | 104.0 | 6.630 | 35.520 | 3.580 | 1.740 | 9.360 | 0.710 |
| 120.0 | 19.9 | 118.4 | 5.110 | 33.370 | 4.460 | 1.570 | 11.260 | 1.050 |
| 135.0 | 19.9 | 134.3 | 4.780 | 35.740 | 4.790 | 1.460 | 11.150 | 1.380 |
| 150.0 | 19.9 | 149.2 | 3.680 | 27.460 | 4.190 | 1.300 | 6.980 | 1.390 |
| 165.0 | 20.0 | 164.1 | 3.340 | 25.260 | 4.990 | 1.240 | 4.980 | 1.520 |
| 180.0 | 20.3 | 179.2 | 3.060 | 28.370 | 4.250 | 1.290 | 4.650 | 1.460 |
| 195.0 | 20.2 | 194.7 | 3.330 | 32.330 | 4.740 | 1.230 | 6.470 | 1.510 |
| 210.0 | 20.1 | 210.1 | 3.450 | 38.620 | 4.690 | 1.290 | 9.200 | 1.420 |
| 225.0 | 20.0 | 225.4 | 4.860 | 37.470 | 4.650 | 1.400 | 11.260 | 1.310 |
| 240.0 | 19.8 | 242.3 | 8.260 | 36.770 | 4.730 | 1.690 | 12.850 | 1.230 |
| 255.0 | 19.8 | 257.5 | 9.030 | 41.030 | 2.800 | 1.950 | 11.390 | 0.850 |
| 270.0 | 20.0 | 271.9 | 8.110 | 31.610 | 2.610 | 2.100 | 9.810 | 0.450 |
| 285.0 | 20.2 | 286.0 | 7.340 | 28.800 | 4.410 | 2.140 | 8.240 | 1.310 |
| 300.0 | 20.2 | 299.9 | 7.660 | 30.570 | 6.600 | 2.060 | 6.000 | 1.900 |
| 315.0 | 20.1 | 314.4 | 6.790 | 21.040 | 7.210 | 1.940 | 4.490 | 2.170 |
| 330.0 | 20.1 | 329.3 | 6.140 | 21.300 | 7.500 | 1.830 | 3.720 | 2.280 |
| 345.0 | 20.0 | 344.3 | 6.290 | 18.940 | 7.560 | 1.770 | 3.180 | 2.320 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.34: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.2 | -0.2 | 6.640 | 15.530 | 6.990 | 1.860 | 2.680 | 2.210 |
| 15.0 | 25.2 | 14.9 | 7.180 | 17.550 | 7.270 | 1.860 | 2.900 | 2.200 |
| 30.0 | 25.2 | 30.0 | 6.530 | 20.860 | 7.190 | 1.900 | 3.620 | 2.180 |
| 45.0 | 25.2 | 45.0 | 6.320 | 25.220 | 6.570 | 1.950 | 4.070 | 2.080 |
| 60.0 | 25.2 | 59.7 | 6.470 | 24.840 | 5.460 | 1.980 | 4.640 | 1.840 |
| 75.0 | 25.2 | 74.3 | 6.870 | 30.150 | 4.000 | 1.970 | 5.760 | 1.320 |
| 90.0 | 25.2 | 89.1 | 7.180 | 31.170 | 2.420 | 1.830 | 7.850 | 0.440 |
| 105.0 | 25.2 | 104.4 | 5.960 | 34.150 | 3.240 | 1.670 | 10.560 | 0.670 |
| 120.0 | 25.0 | 119.4 | 5.410 | 44.940 | 5.600 | 1.550 | 14.900 | 1.070 |
| 135.0 | 24.9 | 134.0 | 4.320 | 36.880 | 4.550 | 1.330 | 11.470 | 1.220 |
| 150.0 | 25.1 | 149.2 | 3.600 | 32.680 | 4.890 | 1.290 | 7.960 | 1.340 |
| 165.0 | 25.7 | 164.2 | 3.320 | 27.820 | 4.030 | 1.190 | 4.860 | 1.380 |
| 180.0 | 26.2 | 179.6 | 3.260 | 26.250 | 4.030 | 1.210 | 3.910 | 1.420 |
| 195.0 | 25.8 | 195.0 | 3.370 | 28.170 | 3.790 | 1.190 | 5.240 | 1.360 |
| 210.0 | 25.2 | 209.9 | 3.490 | 34.210 | 4.380 | 1.120 | 8.230 | 1.310 |
| 225.0 | 25.0 | 225.4 | 4.280 | 39.560 | 4.260 | 1.310 | 12.530 | 1.210 |
| 240.0 | 25.0 | 240.5 | 5.600 | 46.070 | 5.520 | 1.590 | 16.390 | 1.250 |
| 255.0 | 25.0 | 256.3 | 8.830 | 41.750 | 3.310 | 1.860 | 12.450 | 0.840 |
| 270.0 | 25.1 | 271.1 | 7.210 | 39.370 | 2.840 | 2.050 | 10.600 | 0.480 |
| 285.0 | 25.3 | 285.7 | 7.860 | 31.960 | 4.240 | 2.150 | 8.640 | 1.290 |
| 300.0 | 25.3 | 300.0 | 6.980 | 26.430 | 5.950 | 2.110 | 5.990 | 1.840 |
| 315.0 | 25.3 | 314.7 | 7.150 | 21.870 | 6.660 | 2.030 | 4.580 | 2.090 |
| 330.0 | 25.3 | 329.6 | 7.570 | 18.090 | 7.110 | 1.950 | 3.520 | 2.180 |
| 345.0 | 25.2 | 344.7 | 6.830 | 16.770 | 7.300 | 1.890 | 3.000 | 2.210 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.35: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.4 | -0.0 | 6.530 | 16.880 | 6.400 | 1.970 | 2.700 | 2.110 |
| 15.0 | 30.4 | 15.1 | 6.370 | 18.450 | 6.190 | 1.980 | 3.080 | 2.110 |
| 30.0 | 30.4 | 30.1 | 7.380 | 23.700 | 6.930 | 2.010 | 3.640 | 2.090 |
| 45.0 | 30.4 | 45.0 | 7.130 | 26.810 | 7.150 | 2.040 | 4.140 | 2.000 |
| 60.0 | 30.3 | 59.8 | 7.370 | 24.410 | 5.600 | 2.040 | 4.590 | 1.790 |
| 75.0 | 30.3 | 74.5 | 7.840 | 32.880 | 4.170 | 1.980 | 6.000 | 1.300 |
| 90.0 | 30.3 | 89.3 | 7.170 | 36.260 | 3.050 | 1.790 | 8.480 | 0.490 |
| 105.0 | 30.2 | 104.5 | 8.350 | 44.570 | 5.160 | 1.630 | 12.100 | 0.690 |
| 120.0 | 29.9 | 119.2 | 5.440 | 47.540 | 3.630 | 1.440 | 15.530 | 0.970 |
| 135.0 | 29.6 | 133.6 | 5.190 | 45.790 | 4.470 | 1.510 | 13.180 | 1.390 |
| 150.0 | 30.6 | 148.6 | 3.460 | 31.160 | 4.330 | 1.320 | 8.800 | 1.410 |
| 165.0 | 30.9 | 163.5 | 4.020 | 34.980 | 4.950 | 1.230 | 6.490 | 1.520 |
| 180.0 | 31.5 | 179.1 | 6.910 | 34.530 | 9.120 | 1.150 | 6.020 | 1.480 |
| 195.0 | 31.1 | 194.7 | 5.240 | 32.960 | 6.810 | 1.200 | 7.060 | 1.530 |
| 210.0 | 30.8 | 210.7 | 3.680 | 37.190 | 4.510 | 1.350 | 9.580 | 1.490 |
| 225.0 | 29.7 | 226.5 | 5.820 | 47.680 | 5.130 | 1.780 | 14.440 | 1.710 |
| 240.0 | 30.0 | 240.6 | 5.480 | 50.950 | 4.060 | 1.460 | 16.320 | 1.080 |
| 255.0 | 30.2 | 255.6 | 7.710 | 47.940 | 3.690 | 1.760 | 13.020 | 0.870 |
| 270.0 | 30.3 | 270.7 | 7.880 | 41.080 | 2.290 | 1.980 | 10.710 | 0.530 |
| 285.0 | 30.4 | 285.6 | 8.950 | 36.600 | 4.090 | 2.140 | 9.370 | 1.260 |
| 300.0 | 30.4 | 300.1 | 7.110 | 25.780 | 5.420 | 2.150 | 6.240 | 1.780 |
| 315.0 | 30.4 | 314.9 | 7.280 | 24.050 | 6.770 | 2.110 | 4.740 | 2.000 |
| 330.0 | 30.4 | 329.9 | 7.750 | 21.470 | 7.230 | 2.050 | 3.920 | 2.080 |
| 345.0 | 30.4 | 344.9 | 6.260 | 18.990 | 6.420 | 1.990 | 3.100 | 2.100 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.36: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -1.2 | -28.3 | 6.940 | 21.530 | 6.530 | 1.960 | 5.300 | 1.890 |
| 15.0 | -2.4 | -147.7 | 6.610 | 25.700 | 6.560 | 1.880 | 5.740 | 1.820 |
| 30.0 | -1.7 | -66.4 | 6.290 | 26.180 | 8.730 | 1.910 | 9.150 | 1.820 |
| 45.0 | -0.1 | 23.7 | 6.560 | 23.540 | 7.480 | 1.860 | 5.570 | 1.890 |
| 60.0 | 0.5 | 48.8 | 6.650 | 23.420 | 5.710 | 1.950 | 6.530 | 1.520 |
| 75.0 | 0.7 | 68.5 | 7.350 | 24.330 | 4.250 | 2.050 | 6.880 | 0.980 |
| 90.0 | 0.2 | 90.5 | 6.960 | 24.770 | 1.850 | 2.110 | 7.390 | 0.320 |
| 105.0 | -0.4 | 103.0 | 7.010 | 26.820 | 3.370 | 2.100 | 7.640 | 0.640 |
| 120.0 | -1.2 | 112.5 | 8.080 | 31.890 | 4.130 | 2.050 | 7.640 | 0.970 |
| 135.0 | -1.9 | 121.3 | 7.120 | 29.040 | 4.390 | 2.020 | 7.380 | 1.250 |
| 150.0 | -2.4 | 131.4 | 6.490 | 25.470 | 4.660 | 1.970 | 6.650 | 1.490 |
| 165.0 | -2.4 | 144.6 | 6.550 | 24.010 | 5.700 | 1.910 | 5.400 | 1.740 |
| 180.0 | -1.6 | 164.4 | 6.490 | 18.350 | 6.610 | 1.850 | 3.060 | 1.920 |
| 195.0 | 0.3 | 233.5 | 7.480 | 25.160 | 5.970 | 2.070 | 6.760 | 1.500 |
| 210.0 | 0.0 | 243.7 | 6.910 | 25.270 | 5.000 | 2.150 | 7.060 | 1.240 |
| 225.0 | -0.2 | 252.5 | 7.600 | 25.570 | 4.250 | 2.210 | 7.240 | 0.950 |
| 240.0 | -0.4 | 261.1 | 7.900 | 25.070 | 3.340 | 2.250 | 7.220 | 0.620 |
| 255.0 | -0.6 | 270.1 | 8.340 | 25.170 | 2.270 | 2.270 | 7.080 | 0.370 |
| 270.0 | -0.6 | 279.8 | 7.270 | 26.880 | 2.690 | 2.260 | 6.870 | 0.530 |
| 285.0 | -0.5 | 289.4 | 8.160 | 24.310 | 4.260 | 2.230 | 6.570 | 0.910 |
| 300.0 | -0.5 | 298.8 | 7.690 | 24.710 | 4.860 | 2.180 | 6.270 | 1.250 |
| 315.0 | -0.4 | 307.9 | 7.200 | 23.160 | 5.330 | 2.110 | 5.970 | 1.520 |
| 330.0 | -0.5 | 317.1 | 7.020 | 23.260 | 5.560 | 2.050 | 5.650 | 1.710 |
| 345.0 | -0.7 | 325.3 | 7.010 | 21.020 | 5.880 | 2.000 | 5.410 | 1.840 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.37: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 3.8 | -27.9 | 7.060 | 23.140 | 6.250 | 1.950 | 5.510 | 1.940 |
| 15.0 | 3.7 | -20.6 | 6.990 | 21.060 | 7.530 | 1.910 | 5.200 | 2.000 |
| 30.0 | 3.6 | -12.5 | 6.550 | 21.090 | 7.670 | 1.880 | 4.850 | 2.030 |
| 45.0 | 3.6 | -1.5 | 6.600 | 22.990 | 7.530 | 1.860 | 4.600 | 2.040 |
| 60.0 | 3.8 | 23.5 | 7.140 | 23.710 | 6.620 | 1.870 | 5.130 | 1.920 |
| 75.0 | 4.3 | 56.6 | 6.730 | 24.620 | 5.660 | 1.990 | 6.110 | 1.350 |
| 90.0 | 4.4 | 79.3 | 6.740 | 24.540 | 2.810 | 2.090 | 6.580 | 0.560 |
| 105.0 | 4.3 | 95.3 | 7.310 | 26.250 | 1.590 | 2.090 | 6.960 | 0.310 |
| 120.0 | 4.1 | 107.3 | 7.620 | 29.800 | 2.820 | 2.050 | 7.070 | 0.700 |
| 135.0 | 3.8 | 115.8 | 7.530 | 27.430 | 3.800 | 2.010 | 6.950 | 0.990 |
| 150.0 | 3.6 | 125.1 | 7.670 | 27.840 | 4.500 | 1.970 | 6.670 | 1.240 |
| 165.0 | 3.4 | 134.7 | 6.700 | 26.910 | 6.060 | 1.930 | 6.160 | 1.440 |
| 180.0 | 3.4 | 146.6 | 6.030 | 23.240 | 6.480 | 1.880 | 5.290 | 1.620 |
| 195.0 | 3.5 | 165.0 | 6.280 | 22.570 | 6.210 | 1.840 | 4.240 | 1.780 |
| 210.0 | 4.4 | 215.1 | 6.740 | 20.990 | 5.610 | 1.940 | 5.520 | 1.680 |
| 225.0 | 4.3 | 236.0 | 8.200 | 23.630 | 4.550 | 2.080 | 6.460 | 1.360 |
| 240.0 | 4.4 | 249.7 | 6.980 | 24.950 | 3.710 | 2.180 | 6.910 | 0.970 |
| 255.0 | 4.5 | 261.8 | 7.830 | 23.800 | 2.120 | 2.230 | 7.040 | 0.510 |
| 270.0 | 4.6 | 274.3 | 8.240 | 24.330 | 1.760 | 2.250 | 6.840 | 0.260 |
| 285.0 | 4.7 | 287.4 | 9.310 | 25.890 | 2.860 | 2.230 | 6.510 | 0.780 |
| 300.0 | 4.7 | 300.0 | 7.560 | 25.510 | 3.840 | 2.150 | 5.940 | 1.270 |
| 315.0 | 4.5 | 310.9 | 7.660 | 24.060 | 5.250 | 2.080 | 5.750 | 1.590 |
| 330.0 | 4.2 | 318.6 | 7.500 | 23.660 | 5.450 | 2.030 | 5.730 | 1.750 |
| 345.0 | 3.9 | 325.1 | 7.240 | 24.130 | 5.960 | 1.990 | 5.710 | 1.860 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.38: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.4 | -3.3 | 6.360 | 18.310 | 6.510 | 1.870 | 3.110 | 2.060 |
| 15.0 | 9.5 | 11.9 | 6.850 | 20.090 | 7.040 | 1.860 | 3.360 | 2.030 |
| 30.0 | 9.6 | 27.4 | 6.550 | 20.440 | 6.120 | 1.880 | 3.980 | 1.920 |
| 45.0 | 9.7 | 42.6 | 7.350 | 21.340 | 6.000 | 1.940 | 4.560 | 1.710 |
| 60.0 | 9.8 | 57.5 | 6.830 | 21.380 | 4.320 | 2.000 | 4.880 | 1.360 |
| 75.0 | 9.9 | 72.9 | 8.040 | 24.350 | 3.090 | 2.050 | 5.110 | 0.830 |
| 90.0 | 9.9 | 88.0 | 6.890 | 24.710 | 1.090 | 2.070 | 5.740 | 0.230 |
| 105.0 | 9.9 | 103.1 | 7.560 | 27.650 | 1.900 | 2.040 | 6.190 | 0.480 |
| 120.0 | 9.5 | 116.6 | 7.410 | 29.120 | 2.840 | 1.970 | 5.770 | 0.890 |
| 135.0 | 9.3 | 130.6 | 7.070 | 27.360 | 4.110 | 1.920 | 5.080 | 1.210 |
| 150.0 | 9.2 | 144.9 | 5.480 | 23.330 | 5.300 | 1.840 | 4.860 | 1.400 |
| 165.0 | 9.1 | 159.5 | 5.670 | 21.240 | 5.480 | 1.810 | 4.810 | 1.570 |
| 180.0 | 9.4 | 176.8 | 6.230 | 22.960 | 5.640 | 1.770 | 4.860 | 1.630 |
| 195.0 | 9.7 | 193.7 | 5.870 | 21.530 | 5.890 | 1.820 | 4.980 | 1.650 |
| 210.0 | 9.6 | 211.3 | 6.470 | 21.630 | 5.900 | 1.880 | 5.650 | 1.540 |
| 225.0 | 9.6 | 228.1 | 7.110 | 26.600 | 5.140 | 2.000 | 7.050 | 1.380 |
| 240.0 | 9.6 | 243.4 | 7.760 | 22.830 | 3.550 | 2.100 | 7.530 | 1.050 |
| 255.0 | 9.9 | 257.2 | 8.230 | 25.340 | 2.420 | 2.180 | 7.710 | 0.610 |
| 270.0 | 9.9 | 271.4 | 8.880 | 24.630 | 1.160 | 2.220 | 7.480 | 0.200 |
| 285.0 | 10.0 | 285.7 | 8.650 | 26.660 | 3.060 | 2.210 | 6.840 | 0.720 |
| 300.0 | 9.9 | 299.9 | 8.040 | 22.990 | 3.710 | 2.140 | 5.690 | 1.270 |
| 315.0 | 9.8 | 313.7 | 8.650 | 25.140 | 5.670 | 2.070 | 4.950 | 1.660 |
| 330.0 | 9.7 | 327.8 | 6.390 | 22.670 | 6.480 | 1.980 | 4.200 | 1.890 |
| 345.0 | 9.5 | 342.0 | 6.550 | 21.000 | 6.670 | 1.910 | 3.490 | 2.010 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.39: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 14.9 | -1.1 | 7.580 | 17.860 | 7.450 | 1.910 | 2.350 | 2.030 |
| 15.0 | 14.9 | 14.1 | 8.180 | 18.020 | 7.270 | 1.910 | 2.830 | 2.000 |
| 30.0 | 14.9 | 29.2 | 8.170 | 20.760 | 6.580 | 1.920 | 3.590 | 1.880 |
| 45.0 | 15.0 | 44.2 | 7.220 | 21.560 | 5.860 | 1.960 | 4.040 | 1.680 |
| 60.0 | 15.0 | 59.0 | 8.330 | 23.440 | 5.010 | 2.010 | 4.450 | 1.320 |
| 75.0 | 15.1 | 74.0 | 7.710 | 23.200 | 3.160 | 2.020 | 4.500 | 0.820 |
| 90.0 | 15.1 | 89.0 | 7.170 | 24.350 | 1.030 | 2.030 | 5.260 | 0.270 |
| 105.0 | 15.1 | 104.1 | 7.170 | 27.380 | 1.800 | 1.980 | 5.860 | 0.480 |
| 120.0 | 14.9 | 118.4 | 7.630 | 29.170 | 3.250 | 1.900 | 6.110 | 0.840 |
| 135.0 | 14.9 | 133.6 | 6.390 | 26.770 | 3.500 | 1.840 | 6.060 | 1.150 |
| 150.0 | 14.9 | 148.7 | 5.640 | 22.510 | 4.150 | 1.800 | 4.360 | 1.340 |
| 165.0 | 14.9 | 163.7 | 5.460 | 20.860 | 5.320 | 1.730 | 3.570 | 1.400 |
| 180.0 | 15.0 | 178.9 | 5.290 | 20.240 | 4.830 | 1.760 | 3.510 | 1.460 |
| 195.0 | 15.0 | 194.3 | 5.350 | 27.000 | 5.080 | 1.780 | 4.850 | 1.520 |
| 210.0 | 15.0 | 209.9 | 6.020 | 27.880 | 4.600 | 1.850 | 6.700 | 1.440 |
| 225.0 | 14.9 | 226.0 | 6.550 | 26.580 | 4.260 | 1.920 | 8.710 | 1.280 |
| 240.0 | 14.9 | 241.6 | 7.460 | 26.660 | 3.640 | 2.050 | 9.260 | 1.010 |
| 255.0 | 15.1 | 256.0 | 6.960 | 27.380 | 1.900 | 2.130 | 8.980 | 0.610 |
| 270.0 | 15.1 | 270.7 | 8.040 | 29.240 | 1.520 | 2.190 | 8.420 | 0.240 |
| 285.0 | 15.2 | 285.3 | 7.870 | 29.170 | 2.470 | 2.190 | 7.670 | 0.710 |
| 300.0 | 15.1 | 299.9 | 7.100 | 24.690 | 4.030 | 2.140 | 5.940 | 1.250 |
| 315.0 | 15.0 | 314.3 | 8.050 | 24.230 | 6.010 | 2.070 | 4.600 | 1.630 |
| 330.0 | 14.9 | 328.9 | 8.500 | 21.490 | 6.590 | 2.000 | 3.530 | 1.870 |
| 345.0 | 14.9 | 343.8 | 7.890 | 19.930 | 7.060 | 1.950 | 2.870 | 2.000 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.40: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.1 | -0.5 | 6.820 | 16.620 | 6.640 | 1.970 | 2.310 | 1.980 |
| 15.0 | 20.1 | 14.7 | 6.410 | 17.890 | 6.280 | 1.970 | 2.990 | 1.950 |
| 30.0 | 20.1 | 29.8 | 6.610 | 19.600 | 5.890 | 1.980 | 3.860 | 1.850 |
| 45.0 | 20.1 | 44.7 | 8.100 | 20.690 | 5.430 | 2.000 | 4.380 | 1.650 |
| 60.0 | 20.2 | 59.6 | 7.300 | 23.110 | 4.240 | 2.000 | 4.990 | 1.310 |
| 75.0 | 20.3 | 74.4 | 7.620 | 22.610 | 2.580 | 2.000 | 4.550 | 0.840 |
| 90.0 | 20.3 | 89.4 | 7.010 | 23.840 | 1.160 | 1.970 | 5.240 | 0.330 |
| 105.0 | 20.3 | 104.5 | 7.180 | 29.600 | 1.660 | 1.940 | 5.820 | 0.470 |
| 120.0 | 20.1 | 119.2 | 6.190 | 30.410 | 2.650 | 1.870 | 8.230 | 0.820 |
| 135.0 | 20.1 | 134.4 | 5.710 | 29.280 | 3.760 | 1.800 | 7.400 | 1.110 |
| 150.0 | 20.1 | 149.3 | 6.520 | 27.020 | 5.210 | 1.830 | 5.180 | 1.420 |
| 165.0 | 20.2 | 164.4 | 5.220 | 16.970 | 4.660 | 1.820 | 3.140 | 1.450 |
| 180.0 | 20.2 | 179.5 | 4.290 | 21.500 | 3.740 | 1.660 | 3.110 | 1.310 |
| 195.0 | 20.2 | 194.6 | 5.150 | 30.930 | 4.020 | 1.680 | 4.520 | 1.260 |
| 210.0 | 20.2 | 209.9 | 5.210 | 36.020 | 4.730 | 1.820 | 7.370 | 1.360 |
| 225.0 | 20.2 | 225.0 | 5.780 | 37.160 | 4.050 | 1.850 | 8.440 | 1.150 |
| 240.0 | 20.1 | 240.7 | 6.610 | 32.910 | 3.350 | 1.960 | 10.910 | 0.970 |
| 255.0 | 20.2 | 255.5 | 7.830 | 35.660 | 1.950 | 2.070 | 9.870 | 0.610 |
| 270.0 | 20.3 | 270.4 | 7.180 | 33.870 | 1.350 | 2.140 | 9.150 | 0.290 |
| 285.0 | 20.3 | 285.2 | 7.270 | 35.680 | 2.440 | 2.150 | 8.270 | 0.720 |
| 300.0 | 20.2 | 299.8 | 7.960 | 26.880 | 4.350 | 2.140 | 6.140 | 1.240 |
| 315.0 | 20.2 | 314.5 | 8.390 | 24.440 | 5.860 | 2.100 | 4.620 | 1.610 |
| 330.0 | 20.1 | 329.4 | 6.680 | 21.500 | 6.110 | 2.040 | 3.400 | 1.820 |
| 345.0 | 20.1 | 344.4 | 6.530 | 17.950 | 6.390 | 2.000 | 2.480 | 1.940 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.41: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.2 | -0.2 | 7.120 | 17.700 | 5.890 | 2.040 | 2.580 | 1.920 |
| 15.0 | 25.2 | 14.9 | 7.000 | 18.990 | 6.430 | 2.030 | 3.280 | 1.900 |
| 30.0 | 25.2 | 30.0 | 6.880 | 21.020 | 6.390 | 2.030 | 4.160 | 1.800 |
| 45.0 | 25.2 | 45.0 | 6.840 | 22.460 | 5.390 | 2.030 | 5.010 | 1.620 |
| 60.0 | 25.3 | 59.8 | 8.060 | 23.130 | 4.470 | 2.000 | 5.520 | 1.300 |
| 75.0 | 25.3 | 74.6 | 8.290 | 21.840 | 2.930 | 1.950 | 5.000 | 0.850 |
| 90.0 | 25.3 | 89.6 | 6.750 | 24.710 | 1.380 | 1.920 | 5.650 | 0.390 |
| 105.0 | 25.3 | 104.6 | 6.780 | 28.090 | 1.700 | 1.870 | 5.860 | 0.450 |
| 120.0 | 25.2 | 119.6 | 6.490 | 33.300 | 2.620 | 1.830 | 9.720 | 0.790 |
| 135.0 | 25.2 | 134.5 | 5.110 | 27.100 | 2.670 | 1.710 | 6.980 | 0.960 |
| 150.0 | 25.3 | 149.5 | 5.280 | 27.310 | 4.290 | 1.800 | 6.700 | 1.300 |
| 165.0 | 25.5 | 164.5 | 5.450 | 18.980 | 4.030 | 1.940 | 3.610 | 1.500 |
| 180.0 | 25.6 | 179.7 | 4.900 | 18.390 | 4.210 | 1.510 | 1.900 | 1.200 |
| 195.0 | 25.6 | 195.1 | 5.410 | 26.880 | 4.070 | 2.010 | 4.400 | 1.540 |
| 210.0 | 25.3 | 210.0 | 5.890 | 36.720 | 4.220 | 1.710 | 6.800 | 1.220 |
| 225.0 | 25.2 | 225.2 | 7.510 | 44.860 | 4.940 | 1.910 | 10.830 | 1.290 |
| 240.0 | 25.3 | 240.2 | 7.570 | 43.330 | 3.650 | 1.890 | 11.500 | 0.930 |
| 255.0 | 25.3 | 255.2 | 7.220 | 40.430 | 1.930 | 2.040 | 10.070 | 0.600 |
| 270.0 | 25.3 | 270.2 | 7.620 | 36.840 | 1.370 | 2.090 | 9.330 | 0.350 |
| 285.0 | 25.3 | 285.1 | 8.600 | 34.460 | 2.760 | 2.140 | 8.830 | 0.740 |
| 300.0 | 25.3 | 299.8 | 8.450 | 29.940 | 4.230 | 2.140 | 6.090 | 1.220 |
| 315.0 | 25.3 | 314.7 | 6.790 | 24.640 | 5.000 | 2.120 | 4.430 | 1.570 |
| 330.0 | 25.3 | 329.6 | 6.790 | 21.320 | 5.580 | 2.090 | 3.190 | 1.770 |
| 345.0 | 25.2 | 344.7 | 7.300 | 18.920 | 6.600 | 2.060 | 2.450 | 1.880 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.42: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.4 | -0.1 | 8.440 | 18.710 | 6.560 | 2.110 | 2.880 | 1.860 |
| 15.0 | 30.4 | 15.0 | 7.700 | 20.570 | 6.970 | 2.100 | 3.660 | 1.830 |
| 30.0 | 30.4 | 30.1 | 7.720 | 22.400 | 5.560 | 2.090 | 4.460 | 1.760 |
| 45.0 | 30.4 | 45.1 | 8.000 | 24.040 | 5.570 | 2.070 | 5.260 | 1.590 |
| 60.0 | 30.4 | 60.0 | 8.530 | 24.510 | 4.530 | 2.020 | 6.220 | 1.300 |
| 75.0 | 30.4 | 74.7 | 6.940 | 23.520 | 3.010 | 1.940 | 5.670 | 0.870 |
| 90.0 | 30.4 | 89.7 | 6.400 | 27.120 | 1.660 | 1.870 | 6.400 | 0.450 |
| 105.0 | 30.4 | 104.7 | 6.560 | 31.470 | 2.030 | 1.810 | 6.320 | 0.450 |
| 120.0 | 30.3 | 119.8 | 6.020 | 35.900 | 3.040 | 1.790 | 11.700 | 0.810 |
| 135.0 | 30.3 | 134.5 | 5.410 | 30.150 | 3.240 | 1.640 | 9.330 | 1.020 |
| 150.0 | 30.5 | 149.5 | 5.010 | 25.440 | 3.700 | 1.770 | 6.370 | 1.290 |
| 165.0 | 30.8 | 164.5 | 4.600 | 22.870 | 4.100 | 1.430 | 3.340 | 1.350 |
| 180.0 | 30.5 | 179.4 | 4.460 | 24.250 | 5.430 | 1.330 | 2.950 | 1.400 |
| 195.0 | 31.1 | 194.9 | 4.000 | 26.580 | 3.800 | 1.320 | 4.020 | 1.240 |
| 210.0 | 30.7 | 210.2 | 5.030 | 32.900 | 3.860 | 1.800 | 6.720 | 1.320 |
| 225.0 | 30.4 | 225.0 | 5.500 | 41.340 | 3.220 | 1.640 | 8.900 | 0.990 |
| 240.0 | 30.4 | 240.0 | 5.220 | 43.760 | 2.840 | 1.810 | 9.960 | 0.780 |
| 255.0 | 30.4 | 255.1 | 8.060 | 40.720 | 2.180 | 1.970 | 9.370 | 0.610 |
| 270.0 | 30.4 | 270.1 | 6.920 | 38.800 | 1.650 | 2.040 | 9.110 | 0.410 |
| 285.0 | 30.4 | 285.1 | 6.840 | 38.850 | 2.530 | 2.090 | 8.810 | 0.760 |
| 300.0 | 30.4 | 299.8 | 7.770 | 30.600 | 4.660 | 2.140 | 5.970 | 1.200 |
| 315.0 | 30.4 | 314.8 | 7.460 | 25.490 | 5.330 | 2.150 | 4.090 | 1.530 |
| 330.0 | 30.4 | 329.8 | 6.770 | 23.220 | 5.420 | 2.140 | 3.170 | 1.720 |
| 345.0 | 30.4 | 344.9 | 8.800 | 19.610 | 6.560 | 2.120 | 2.660 | 1.820 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.43: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -1.9 | -362.1 | 9.790 | 42.580 | 10.710 | 3.060 | 13.900 | 2.550 |
| 15.0 | -1.3 | -366.1 | 9.680 | 38.840 | 10.890 | 2.800 | 13.940 | 3.000 |
| 30.0 | -4.3 | 98.6 | 9.980 | 39.440 | 10.320 | 2.780 | 12.640 | 2.990 |
| 45.0 | -4.6 | -120.5 | 9.980 | 49.470 | 9.470 | 2.850 | 12.060 | 2.710 |
| 60.0 | 1.3 | 32.4 | 9.560 | 38.380 | 10.560 | 2.840 | 11.940 | 2.640 |
| 75.0 | 2.5 | 77.1 | 10.750 | 38.370 | 7.670 | 3.080 | 10.190 | 1.410 |
| 90.0 | 1.1 | 99.2 | 11.590 | 41.850 | 7.430 | 3.130 | 11.370 | 1.070 |
| 105.0 | -1.8 | 109.2 | 10.520 | 43.900 | 9.320 | 3.080 | 11.610 | 1.660 |
| 120.0 | -4.6 | 118.2 | 9.950 | 42.730 | 7.370 | 3.000 | 11.320 | 2.150 |
| 135.0 | -5.7 | 125.8 | 9.710 | 90.230 | 9.270 | 2.900 | 10.830 | 2.530 |
| 150.0 | -3.9 | 322.4 | 8.870 | 41.660 | 12.320 | 2.800 | 13.090 | 2.900 |
| 165.0 | -3.4 | 324.2 | 10.140 | 41.450 | 13.440 | 2.820 | 13.480 | 3.040 |
| 180.0 | -2.2 | 783.2 | 9.810 | 40.120 | 12.330 | 3.000 | 14.260 | 2.740 |
| 195.0 | -2.6 | 28.5 | 13.120 | 43.350 | 12.820 | 3.310 | 13.800 | 2.400 |
| 210.0 | -0.5 | 260.7 | 12.250 | 37.580 | 8.590 | 3.410 | 12.170 | 1.430 |
| 225.0 | -1.1 | 262.1 | 13.940 | 40.990 | 6.690 | 3.520 | 12.360 | 1.180 |
| 240.0 | -1.8 | 266.7 | 14.080 | 40.790 | 5.450 | 3.570 | 12.510 | 0.850 |
| 255.0 | -2.4 | 272.0 | 11.660 | 42.200 | 5.350 | 3.590 | 12.560 | 0.720 |
| 270.0 | -2.4 | 277.0 | 14.400 | 41.740 | 5.220 | 3.590 | 12.330 | 0.920 |
| 285.0 | -2.2 | 281.9 | 13.840 | 41.950 | 7.460 | 3.570 | 12.250 | 1.270 |
| 300.0 | -1.4 | 288.1 | 15.280 | 48.040 | 6.090 | 3.500 | 12.130 | 1.690 |
| 315.0 | -1.7 | 292.9 | 14.960 | 51.780 | 7.770 | 3.430 | 12.190 | 2.020 |
| 330.0 | -1.9 | 298.9 | 11.820 | 48.050 | 8.500 | 3.320 | 11.890 | 2.330 |
| 345.0 | -2.1 | 151.1 | 13.100 | 40.450 | 10.450 | 3.200 | 12.700 | 2.510 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.44: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 2.8 | -48.0 | 12.450 | 50.710 | 9.730 | 3.080 | 11.150 | 2.830 |
| 15.0 | 2.1 | -79.8 | 12.160 | 41.510 | 11.310 | 2.940 | 14.560 | 2.730 |
| 30.0 | 2.2 | -120.7 | 10.480 | 41.080 | 8.180 | 2.900 | 11.430 | 2.240 |
| 45.0 | 2.8 | -101.7 | 9.820 | 47.260 | 9.330 | 2.920 | 12.910 | 2.160 |
| 60.0 | 3.6 | -92.5 | 10.860 | 43.770 | 10.760 | 3.000 | 13.030 | 1.820 |
| 75.0 | 4.3 | -74.4 | 11.310 | 56.840 | 8.050 | 3.060 | 13.770 | 1.390 |
| 90.0 | 5.1 | 89.4 | 14.740 | 50.460 | 5.490 | 3.120 | 10.620 | 0.730 |
| 105.0 | 4.4 | 103.8 | 10.770 | 42.220 | 5.790 | 3.100 | 11.030 | 1.120 |
| 120.0 | 3.4 | 112.7 | 11.740 | 44.710 | 6.810 | 3.020 | 10.950 | 1.630 |
| 135.0 | 2.5 | 120.3 | 11.580 | 43.470 | 7.720 | 2.940 | 10.840 | 2.000 |
| 150.0 | 2.0 | 128.7 | 10.130 | 41.130 | 8.660 | 2.840 | 10.380 | 2.320 |
| 165.0 | 1.5 | 132.3 | 9.060 | 40.700 | 9.040 | 2.810 | 10.310 | 2.480 |
| 180.0 | 2.2 | 82.9 | 10.340 | 40.860 | 10.310 | 2.960 | 14.670 | 2.760 |
| 195.0 | 3.5 | 364.1 | 11.030 | 48.710 | 10.310 | 3.160 | 14.000 | 2.490 |
| 210.0 | 4.2 | 258.4 | 15.470 | 50.140 | 11.070 | 3.360 | 12.010 | 1.480 |
| 225.0 | 3.7 | 262.3 | 11.900 | 51.540 | 7.870 | 3.440 | 12.390 | 1.250 |
| 240.0 | 3.3 | 267.8 | 10.610 | 43.820 | 5.910 | 3.510 | 12.510 | 0.880 |
| 255.0 | 3.8 | 275.6 | 14.020 | 42.530 | 5.380 | 3.550 | 12.090 | 0.720 |
| 270.0 | 3.6 | 281.8 | 13.570 | 45.230 | 8.410 | 3.560 | 12.060 | 1.080 |
| 285.0 | 4.1 | 288.6 | 13.090 | 46.610 | 6.130 | 3.500 | 11.710 | 1.600 |
| 300.0 | 3.9 | 294.7 | 14.570 | 43.940 | 6.060 | 3.390 | 11.320 | 2.050 |
| 315.0 | 3.5 | 298.7 | 13.670 | 57.220 | 7.680 | 3.330 | 11.470 | 2.310 |
| 330.0 | 3.3 | 303.3 | 14.030 | 49.590 | 9.330 | 3.270 | 11.480 | 2.550 |
| 345.0 | 2.9 | 307.7 | 13.130 | 50.600 | 8.480 | 3.180 | 11.450 | 2.720 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.45: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 7.5 | -40.9 | 11.920 | 47.840 | 11.070 | 3.010 | 11.540 | 3.070 |
| 15.0 | 7.3 | -34.1 | 10.350 | 43.970 | 12.600 | 2.920 | 11.100 | 3.190 |
| 30.0 | 7.2 | -24.6 | 9.800 | 42.990 | 10.910 | 2.820 | 10.380 | 3.290 |
| 45.0 | 7.2 | -15.9 | 9.630 | 39.330 | 13.030 | 2.760 | 10.140 | 3.320 |
| 60.0 | 7.2 | 1.8 | 9.540 | 37.530 | 13.100 | 2.700 | 9.240 | 3.360 |
| 75.0 | 9.8 | 71.2 | 10.290 | 32.980 | 6.510 | 3.050 | 8.400 | 1.680 |
| 90.0 | 9.8 | 88.5 | 11.830 | 37.610 | 3.370 | 3.120 | 10.160 | 0.530 |
| 105.0 | 9.6 | 104.5 | 11.740 | 42.800 | 4.750 | 3.060 | 10.560 | 1.010 |
| 120.0 | 8.9 | 116.0 | 10.640 | 47.760 | 8.400 | 2.930 | 9.970 | 1.580 |
| 135.0 | 8.1 | 126.4 | 10.610 | 44.300 | 7.590 | 2.820 | 8.640 | 1.930 |
| 150.0 | 7.7 | 135.1 | 11.410 | 39.750 | 8.730 | 2.730 | 8.250 | 2.140 |
| 165.0 | 7.4 | 144.3 | 9.750 | 39.770 | 8.700 | 2.630 | 8.710 | 2.330 |
| 180.0 | 7.4 | 154.7 | 9.100 | 37.120 | 9.540 | 2.580 | 8.320 | 2.580 |
| 195.0 | 8.9 | 199.1 | 8.230 | 41.340 | 9.460 | 2.670 | 8.680 | 2.770 |
| 210.0 | 8.3 | 237.7 | 10.380 | 50.730 | 9.950 | 3.080 | 11.520 | 2.270 |
| 225.0 | 8.3 | 253.6 | 13.230 | 57.970 | 8.370 | 3.310 | 12.220 | 1.600 |
| 240.0 | 8.3 | 261.0 | 13.800 | 48.990 | 5.570 | 3.400 | 12.400 | 1.180 |
| 255.0 | 8.4 | 270.4 | 11.140 | 48.240 | 4.130 | 3.460 | 12.560 | 0.710 |
| 270.0 | 8.6 | 278.9 | 12.760 | 44.480 | 9.150 | 3.500 | 12.590 | 0.910 |
| 285.0 | 9.1 | 288.4 | 13.010 | 43.920 | 6.900 | 3.440 | 11.820 | 1.580 |
| 300.0 | 9.3 | 299.0 | 12.840 | 57.290 | 7.030 | 3.330 | 10.800 | 2.300 |
| 315.0 | 8.4 | 306.6 | 12.640 | 50.610 | 8.620 | 3.180 | 10.830 | 2.690 |
| 330.0 | 7.9 | 309.6 | 12.410 | 53.110 | 8.620 | 3.150 | 11.370 | 2.810 |
| 345.0 | 7.7 | 314.9 | 11.230 | 49.560 | 9.380 | 3.070 | 11.280 | 2.990 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.46: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 13.0 | -8.8 | 11.800 | 41.660 | 12.750 | 2.790 | 8.800 | 3.390 |
| 15.0 | 13.6 | 9.9 | 11.760 | 39.390 | 10.920 | 2.770 | 7.640 | 3.350 |
| 30.0 | 14.0 | 26.7 | 11.210 | 33.440 | 10.720 | 2.820 | 6.670 | 3.210 |
| 45.0 | 14.4 | 42.6 | 11.340 | 32.260 | 9.090 | 2.880 | 6.620 | 2.910 |
| 60.0 | 14.6 | 57.5 | 10.320 | 34.810 | 7.700 | 2.970 | 6.370 | 2.430 |
| 75.0 | 15.0 | 73.1 | 12.120 | 38.490 | 4.940 | 3.060 | 8.570 | 1.570 |
| 90.0 | 15.0 | 88.9 | 13.080 | 45.230 | 2.650 | 3.080 | 10.260 | 0.490 |
| 105.0 | 15.0 | 104.7 | 12.030 | 57.530 | 8.190 | 3.010 | 10.810 | 0.970 |
| 120.0 | 14.4 | 117.4 | 10.030 | 42.640 | 6.110 | 2.830 | 9.450 | 1.460 |
| 135.0 | 14.0 | 131.7 | 9.580 | 34.920 | 6.560 | 2.650 | 7.940 | 1.820 |
| 150.0 | 14.2 | 146.4 | 7.470 | 34.340 | 7.380 | 2.550 | 5.910 | 2.060 |
| 165.0 | 14.6 | 162.0 | 7.120 | 33.060 | 8.080 | 2.460 | 5.180 | 2.150 |
| 180.0 | 14.6 | 177.5 | 7.270 | 34.200 | 7.220 | 2.500 | 6.100 | 2.360 |
| 195.0 | 14.7 | 194.8 | 7.050 | 37.120 | 8.080 | 2.520 | 7.650 | 2.390 |
| 210.0 | 14.2 | 216.7 | 11.100 | 48.290 | 9.010 | 2.710 | 10.990 | 2.210 |
| 225.0 | 13.8 | 235.0 | 10.900 | 37.910 | 5.840 | 2.970 | 12.520 | 1.920 |
| 240.0 | 13.7 | 248.5 | 12.670 | 42.370 | 5.820 | 3.160 | 13.210 | 1.610 |
| 255.0 | 13.9 | 261.5 | 17.120 | 64.620 | 4.650 | 3.340 | 13.980 | 0.980 |
| 270.0 | 14.2 | 274.6 | 12.420 | 44.230 | 3.690 | 3.440 | 14.000 | 0.630 |
| 285.0 | 14.5 | 287.4 | 15.020 | 51.260 | 6.360 | 3.430 | 13.190 | 1.490 |
| 300.0 | 14.6 | 300.2 | 10.790 | 47.890 | 7.050 | 3.290 | 10.230 | 2.330 |
| 315.0 | 14.4 | 312.9 | 12.520 | 54.580 | 8.860 | 3.140 | 9.420 | 2.850 |
| 330.0 | 13.9 | 326.0 | 12.580 | 54.500 | 12.170 | 2.980 | 9.290 | 3.170 |
| 345.0 | 13.5 | 339.5 | 11.930 | 47.710 | 12.250 | 2.870 | 8.440 | 3.320 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.47: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 19.6 | -1.6 | 10.110 | 36.250 | 9.440 | 2.930 | 6.700 | 3.230 |
| 15.0 | 19.6 | 13.6 | 10.860 | 32.100 | 10.500 | 2.920 | 5.940 | 3.190 |
| 30.0 | 19.7 | 29.1 | 10.650 | 31.120 | 9.470 | 2.940 | 6.030 | 3.080 |
| 45.0 | 19.8 | 44.1 | 11.570 | 36.280 | 8.470 | 2.970 | 6.100 | 2.810 |
| 60.0 | 19.8 | 58.6 | 11.270 | 34.460 | 8.010 | 3.000 | 5.650 | 2.360 |
| 75.0 | 20.0 | 73.8 | 12.560 | 36.960 | 5.250 | 3.030 | 8.880 | 1.560 |
| 90.0 | 20.0 | 89.1 | 13.380 | 58.590 | 4.500 | 3.000 | 10.650 | 0.570 |
| 105.0 | 20.0 | 104.3 | 13.100 | 60.090 | 7.760 | 2.890 | 11.600 | 0.880 |
| 120.0 | 19.7 | 118.6 | 10.140 | 41.690 | 5.270 | 2.700 | 10.940 | 1.320 |
| 135.0 | 19.6 | 133.4 | 8.260 | 40.480 | 6.160 | 2.560 | 10.070 | 1.670 |
| 150.0 | 19.6 | 148.0 | 7.130 | 45.150 | 6.790 | 2.510 | 7.620 | 1.860 |
| 165.0 | 19.6 | 163.7 | 7.480 | 37.310 | 7.190 | 2.440 | 5.640 | 2.140 |
| 180.0 | 19.8 | 179.8 | 8.280 | 35.760 | 7.960 | 2.540 | 6.250 | 2.440 |
| 195.0 | 19.7 | 195.7 | 8.150 | 44.370 | 6.990 | 2.420 | 8.930 | 2.270 |
| 210.0 | 19.7 | 210.4 | 9.910 | 49.880 | 6.850 | 2.440 | 11.020 | 1.990 |
| 225.0 | 19.6 | 226.6 | 7.990 | 46.950 | 5.980 | 2.660 | 12.950 | 1.880 |
| 240.0 | 19.3 | 243.6 | 12.400 | 41.290 | 5.350 | 2.940 | 14.920 | 1.570 |
| 255.0 | 19.6 | 258.3 | 13.580 | 47.950 | 3.560 | 3.230 | 15.530 | 1.040 |
| 270.0 | 19.6 | 272.8 | 13.010 | 48.610 | 3.410 | 3.370 | 15.530 | 0.600 |
| 285.0 | 19.8 | 286.6 | 14.820 | 59.450 | 5.270 | 3.380 | 14.260 | 1.440 |
| 300.0 | 19.9 | 300.3 | 14.460 | 63.420 | 7.870 | 3.320 | 11.010 | 2.290 |
| 315.0 | 19.8 | 314.1 | 10.810 | 52.910 | 10.250 | 3.180 | 9.390 | 2.790 |
| 330.0 | 19.7 | 328.6 | 11.180 | 39.840 | 9.250 | 3.070 | 7.860 | 3.070 |
| 345.0 | 19.6 | 343.4 | 9.950 | 32.160 | 10.930 | 2.990 | 7.350 | 3.200 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.48: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.0 | -0.7 | 11.210 | 33.020 | 10.690 | 3.060 | 5.940 | 3.080 |
| 15.0 | 25.0 | 14.6 | 10.710 | 30.580 | 9.930 | 3.040 | 5.670 | 3.050 |
| 30.0 | 25.0 | 29.8 | 10.280 | 31.520 | 9.260 | 3.040 | 5.770 | 2.950 |
| 45.0 | 25.0 | 44.6 | 11.220 | 34.730 | 8.280 | 3.040 | 5.710 | 2.730 |
| 60.0 | 25.0 | 59.2 | 11.860 | 35.640 | 7.570 | 3.040 | 5.660 | 2.310 |
| 75.0 | 25.0 | 74.1 | 12.230 | 43.470 | 5.190 | 3.000 | 9.830 | 1.570 |
| 90.0 | 25.1 | 89.2 | 11.310 | 57.340 | 11.540 | 2.920 | 11.220 | 0.700 |
| 105.0 | 25.0 | 104.2 | 10.840 | 53.250 | 7.580 | 2.820 | 12.180 | 0.830 |
| 120.0 | 24.8 | 119.1 | 9.140 | 53.670 | 6.140 | 2.690 | 14.280 | 1.310 |
| 135.0 | 24.6 | 133.6 | 8.080 | 49.150 | 7.120 | 2.640 | 12.490 | 1.750 |
| 150.0 | 24.9 | 148.5 | 7.360 | 51.870 | 6.700 | 2.640 | 8.750 | 2.000 |
| 165.0 | 25.5 | 163.7 | 7.250 | 45.830 | 7.230 | 2.100 | 5.930 | 1.930 |
| 180.0 | 26.3 | 179.3 | 11.930 | 42.200 | 15.070 | 2.440 | 5.570 | 2.200 |
| 195.0 | 26.0 | 195.3 | 5.060 | 35.660 | 5.440 | 1.680 | 6.150 | 1.730 |
| 210.0 | 25.1 | 210.5 | 6.840 | 42.260 | 7.470 | 2.230 | 10.010 | 1.770 |
| 225.0 | 24.8 | 225.5 | 6.870 | 51.210 | 6.240 | 2.520 | 13.840 | 1.710 |
| 240.0 | 24.7 | 241.4 | 12.130 | 53.860 | 5.660 | 2.730 | 16.430 | 1.510 |
| 255.0 | 24.8 | 256.7 | 14.000 | 79.390 | 6.820 | 3.100 | 16.720 | 1.070 |
| 270.0 | 24.8 | 271.8 | 11.610 | 53.870 | 3.580 | 3.290 | 16.500 | 0.650 |
| 285.0 | 25.0 | 286.2 | 12.920 | 59.270 | 5.240 | 3.340 | 15.500 | 1.410 |
| 300.0 | 25.0 | 300.4 | 13.950 | 52.170 | 7.080 | 3.320 | 11.190 | 2.230 |
| 315.0 | 25.1 | 314.7 | 12.200 | 56.750 | 9.790 | 3.250 | 8.860 | 2.710 |
| 330.0 | 25.0 | 329.4 | 10.610 | 43.640 | 9.910 | 3.170 | 7.720 | 2.940 |
| 345.0 | 25.0 | 344.3 | 10.690 | 30.610 | 9.240 | 3.100 | 6.500 | 3.050 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.49: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.3 | -0.1 | 11.510 | 29.720 | 9.380 | 3.170 | 5.730 | 2.930 |
| 15.0 | 30.2 | 15.0 | 11.310 | 29.930 | 9.080 | 3.150 | 5.540 | 2.910 |
| 30.0 | 30.2 | 30.1 | 11.420 | 33.060 | 8.910 | 3.120 | 5.710 | 2.820 |
| 45.0 | 30.2 | 44.9 | 10.500 | 34.390 | 7.930 | 3.120 | 6.070 | 2.640 |
| 60.0 | 30.2 | 59.5 | 10.730 | 35.110 | 7.360 | 3.070 | 5.900 | 2.270 |
| 75.0 | 30.1 | 74.2 | 12.130 | 43.810 | 4.670 | 2.990 | 10.720 | 1.570 |
| 90.0 | 30.1 | 89.2 | 13.820 | 63.610 | 9.280 | 2.850 | 12.240 | 0.760 |
| 105.0 | 30.1 | 104.2 | 9.560 | 57.990 | 5.400 | 2.730 | 13.020 | 0.780 |
| 120.0 | 29.8 | 119.5 | 8.580 | 46.950 | 4.990 | 2.620 | 15.870 | 1.230 |
| 135.0 | 29.3 | 132.0 | 6.980 | 56.790 | 4.890 | 2.430 | 13.050 | 1.570 |
| 150.0 | 29.6 | 146.6 | 6.090 | 52.890 | 5.310 | 2.370 | 10.280 | 1.980 |
| 165.0 | 30.3 | 161.6 | 7.730 | 54.150 | 8.310 | 2.660 | 8.030 | 2.360 |
| 180.0 | 31.0 | 177.2 | 6.360 | 48.160 | 6.790 | 2.190 | 7.460 | 2.300 |
| 195.0 | 31.5 | 194.2 | 7.210 | 45.700 | 7.760 | 2.260 | 8.790 | 2.230 |
| 210.0 | 30.4 | 212.5 | 7.620 | 46.030 | 6.570 | 2.650 | 13.300 | 2.350 |
| 225.0 | 30.0 | 225.7 | 9.110 | 66.410 | 7.500 | 2.340 | 13.570 | 1.720 |
| 240.0 | 29.7 | 240.5 | 9.790 | 57.310 | 6.390 | 2.700 | 18.150 | 1.620 |
| 255.0 | 29.9 | 255.8 | 12.950 | 71.380 | 8.900 | 2.990 | 17.420 | 1.130 |
| 270.0 | 30.0 | 271.1 | 12.710 | 60.720 | 3.670 | 3.210 | 16.720 | 0.730 |
| 285.0 | 30.1 | 285.9 | 11.800 | 67.320 | 5.450 | 3.310 | 16.030 | 1.410 |
| 300.0 | 30.2 | 300.4 | 13.050 | 53.480 | 6.270 | 3.340 | 11.760 | 2.170 |
| 315.0 | 30.3 | 315.0 | 11.680 | 56.160 | 8.750 | 3.300 | 9.490 | 2.610 |
| 330.0 | 30.3 | 329.8 | 13.490 | 40.060 | 8.560 | 3.250 | 7.630 | 2.810 |
| 345.0 | 30.3 | 344.8 | 11.380 | 33.920 | 8.910 | 3.200 | 6.500 | 2.900 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.50: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.3 | -529.3 | 11.310 | 38.670 | 10.150 | 3.130 | 13.570 | 2.470 |
| 15.0 | -2.6 | -113.0 | 9.610 | 35.890 | 10.260 | 2.900 | 10.280 | 2.950 |
| 30.0 | -4.0 | -135.5 | 9.400 | 38.280 | 9.650 | 2.920 | 10.500 | 2.760 |
| 45.0 | -3.8 | -120.5 | 10.690 | 43.110 | 9.280 | 3.010 | 11.610 | 2.440 |
| 60.0 | 2.2 | 51.7 | 10.240 | 31.950 | 7.860 | 3.030 | 8.320 | 2.240 |
| 75.0 | 2.1 | 80.1 | 11.670 | 35.270 | 6.780 | 3.190 | 9.140 | 0.950 |
| 90.0 | 0.3 | 101.2 | 14.170 | 37.560 | 5.210 | 3.220 | 10.040 | 0.890 |
| 105.0 | -1.5 | 111.4 | 12.190 | 40.250 | 7.030 | 3.170 | 10.390 | 1.430 |
| 120.0 | -3.6 | 122.6 | 11.010 | 42.530 | 7.170 | 3.090 | 10.100 | 1.960 |
| 135.0 | -4.7 | 134.3 | 9.630 | 43.990 | 8.710 | 3.010 | 8.890 | 2.390 |
| 150.0 | -4.5 | 149.3 | 9.790 | 37.240 | 10.570 | 2.930 | 6.800 | 2.750 |
| 165.0 | -2.9 | 168.9 | 9.850 | 30.610 | 12.220 | 2.860 | 3.970 | 3.010 |
| 180.0 | -1.3 | 526.9 | 12.020 | 45.660 | 10.780 | 3.120 | 14.360 | 2.620 |
| 195.0 | -1.6 | 358.3 | 12.420 | 38.780 | 9.410 | 3.320 | 13.520 | 2.120 |
| 210.0 | -0.4 | 251.6 | 12.160 | 36.740 | 7.520 | 3.430 | 10.820 | 1.600 |
| 225.0 | -0.7 | 256.9 | 12.640 | 37.960 | 6.040 | 3.490 | 10.960 | 1.280 |
| 240.0 | -1.2 | 263.7 | 12.720 | 39.640 | 5.230 | 3.560 | 11.010 | 0.840 |
| 255.0 | -2.0 | 270.9 | 13.200 | 44.640 | 3.460 | 3.620 | 11.010 | 0.560 |
| 270.0 | -2.1 | 278.3 | 11.730 | 40.780 | 3.020 | 3.590 | 10.760 | 0.730 |
| 285.0 | -2.1 | 284.3 | 13.050 | 38.590 | 4.150 | 3.570 | 10.580 | 1.120 |
| 300.0 | -2.4 | 290.2 | 11.430 | 41.080 | 5.690 | 3.520 | 10.520 | 1.490 |
| 315.0 | -2.7 | 241.7 | 11.070 | 49.510 | 12.130 | 3.500 | 15.350 | 1.780 |
| 330.0 | -2.6 | 252.0 | 11.240 | 49.770 | 8.470 | 3.400 | 14.630 | 2.040 |
| 345.0 | -2.7 | 50.0 | 10.460 | 40.700 | 9.040 | 3.300 | 12.180 | 2.320 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.51: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 2.8 | -40.7 | 10.760 | 44.120 | 9.430 | 3.170 | 9.890 | 2.680 |
| 15.0 | 2.2 | -132.5 | 10.130 | 39.890 | 8.970 | 2.960 | 9.730 | 2.280 |
| 30.0 | 2.6 | -88.1 | 10.490 | 42.080 | 10.840 | 3.010 | 14.600 | 2.330 |
| 45.0 | 3.1 | -99.6 | 10.150 | 40.180 | 7.370 | 3.060 | 12.460 | 1.930 |
| 60.0 | 3.6 | -83.8 | 10.670 | 40.780 | 8.520 | 3.100 | 13.240 | 1.770 |
| 75.0 | 5.1 | 66.4 | 10.430 | 31.580 | 6.780 | 3.100 | 7.920 | 1.650 |
| 90.0 | 4.9 | 89.0 | 11.720 | 34.390 | 4.250 | 3.210 | 9.050 | 0.530 |
| 105.0 | 4.4 | 104.1 | 11.780 | 38.150 | 4.680 | 3.180 | 9.630 | 0.920 |
| 120.0 | 3.6 | 114.9 | 10.440 | 42.500 | 5.700 | 3.120 | 9.570 | 1.450 |
| 135.0 | 3.0 | 122.9 | 11.130 | 44.120 | 5.870 | 3.060 | 9.310 | 1.790 |
| 150.0 | 2.5 | 131.4 | 10.680 | 43.820 | 7.030 | 3.000 | 8.830 | 2.110 |
| 165.0 | 2.2 | 138.9 | 10.450 | 39.650 | 8.190 | 2.940 | 8.340 | 2.340 |
| 180.0 | 2.1 | 149.1 | 10.330 | 33.640 | 10.430 | 2.880 | 7.690 | 2.550 |
| 195.0 | 4.2 | 206.2 | 9.440 | 35.680 | 9.810 | 2.980 | 7.830 | 2.720 |
| 210.0 | 4.3 | 241.2 | 12.130 | 37.900 | 8.700 | 3.300 | 10.330 | 1.960 |
| 225.0 | 4.0 | 251.2 | 10.800 | 40.640 | 6.410 | 3.420 | 10.700 | 1.550 |
| 240.0 | 3.9 | 260.4 | 11.250 | 40.820 | 5.400 | 3.490 | 10.840 | 1.070 |
| 255.0 | 4.0 | 270.1 | 11.440 | 40.510 | 3.620 | 3.540 | 10.810 | 0.580 |
| 270.0 | 4.0 | 278.8 | 13.040 | 38.890 | 3.140 | 3.560 | 10.750 | 0.640 |
| 285.0 | 4.0 | 287.8 | 13.010 | 45.300 | 4.030 | 3.510 | 10.380 | 1.200 |
| 300.0 | 3.9 | 296.2 | 13.560 | 49.160 | 5.490 | 3.450 | 9.810 | 1.730 |
| 315.0 | 3.6 | 301.3 | 12.010 | 53.690 | 6.240 | 3.410 | 10.060 | 2.020 |
| 330.0 | 3.3 | 307.1 | 11.820 | 56.020 | 7.340 | 3.330 | 10.100 | 2.290 |
| 345.0 | 3.0 | 313.4 | 11.810 | 46.550 | 9.550 | 3.250 | 10.050 | 2.510 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.52: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 7.6 | -33.6 | 10.900 | 51.350 | 11.070 | 3.100 | 10.010 | 2.880 |
| 15.0 | 7.4 | -26.9 | 9.830 | 44.360 | 10.060 | 3.030 | 9.880 | 2.970 |
| 30.0 | 7.4 | -18.7 | 10.360 | 38.380 | 11.540 | 2.980 | 9.350 | 3.050 |
| 45.0 | 7.4 | -8.1 | 10.190 | 36.540 | 11.420 | 2.930 | 8.770 | 3.100 |
| 60.0 | 7.6 | 13.7 | 10.520 | 33.650 | 9.990 | 2.890 | 8.110 | 2.990 |
| 75.0 | 9.9 | 71.8 | 11.250 | 33.680 | 4.940 | 3.130 | 7.480 | 1.340 |
| 90.0 | 9.9 | 88.5 | 12.190 | 35.970 | 2.040 | 3.180 | 8.570 | 0.400 |
| 105.0 | 9.7 | 104.0 | 11.420 | 39.970 | 4.840 | 3.120 | 8.910 | 0.810 |
| 120.0 | 9.0 | 116.0 | 10.870 | 37.780 | 6.410 | 3.050 | 7.980 | 1.340 |
| 135.0 | 8.4 | 127.3 | 10.630 | 37.960 | 7.300 | 2.980 | 7.040 | 1.720 |
| 150.0 | 7.9 | 137.5 | 9.600 | 36.950 | 7.810 | 2.900 | 6.560 | 2.030 |
| 165.0 | 7.7 | 145.8 | 9.820 | 38.990 | 8.230 | 2.850 | 6.650 | 2.180 |
| 180.0 | 7.6 | 157.3 | 9.330 | 37.850 | 8.720 | 2.780 | 7.040 | 2.360 |
| 195.0 | 9.0 | 194.5 | 9.430 | 41.390 | 10.170 | 2.850 | 7.480 | 2.550 |
| 210.0 | 8.9 | 221.5 | 10.860 | 41.700 | 8.440 | 3.070 | 9.680 | 2.270 |
| 225.0 | 8.7 | 238.4 | 10.750 | 38.910 | 6.820 | 3.220 | 10.460 | 1.890 |
| 240.0 | 8.8 | 251.0 | 13.820 | 42.100 | 5.650 | 3.390 | 11.110 | 1.400 |
| 255.0 | 9.1 | 262.7 | 10.940 | 40.510 | 3.920 | 3.480 | 11.570 | 0.820 |
| 270.0 | 9.3 | 274.9 | 12.860 | 39.410 | 3.140 | 3.510 | 11.710 | 0.460 |
| 285.0 | 9.5 | 287.2 | 12.170 | 50.280 | 4.010 | 3.490 | 11.220 | 1.150 |
| 300.0 | 9.4 | 299.6 | 11.600 | 41.390 | 6.070 | 3.400 | 9.520 | 1.920 |
| 315.0 | 8.9 | 310.0 | 13.000 | 49.740 | 7.720 | 3.260 | 9.230 | 2.400 |
| 330.0 | 8.0 | 314.6 | 12.790 | 49.980 | 7.880 | 3.210 | 9.820 | 2.570 |
| 345.0 | 7.7 | 320.9 | 11.610 | 46.870 | 9.540 | 3.140 | 9.760 | 2.760 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.53: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 13.9 | -4.3 | 12.430 | 37.630 | 10.830 | 2.950 | 6.640 | 3.100 |
| 15.0 | 14.0 | 11.3 | 12.170 | 32.970 | 10.080 | 2.930 | 6.070 | 3.070 |
| 30.0 | 14.3 | 27.1 | 11.590 | 31.230 | 10.130 | 2.960 | 5.830 | 2.910 |
| 45.0 | 14.5 | 42.6 | 10.880 | 30.880 | 8.160 | 2.990 | 5.490 | 2.590 |
| 60.0 | 14.7 | 57.4 | 10.760 | 30.570 | 7.800 | 3.050 | 5.320 | 2.090 |
| 75.0 | 15.0 | 73.4 | 12.550 | 32.830 | 4.730 | 3.110 | 7.490 | 1.300 |
| 90.0 | 15.0 | 88.8 | 11.670 | 39.430 | 2.180 | 3.120 | 8.480 | 0.430 |
| 105.0 | 15.0 | 104.3 | 10.510 | 39.780 | 4.020 | 3.090 | 8.670 | 0.750 |
| 120.0 | 14.5 | 117.6 | 11.250 | 34.730 | 6.230 | 2.930 | 7.470 | 1.250 |
| 135.0 | 14.3 | 132.0 | 9.700 | 36.010 | 5.610 | 2.840 | 5.980 | 1.640 |
| 150.0 | 14.2 | 146.8 | 10.810 | 33.420 | 7.550 | 2.740 | 5.030 | 1.920 |
| 165.0 | 14.4 | 162.1 | 7.950 | 33.300 | 7.490 | 2.710 | 4.750 | 2.110 |
| 180.0 | 14.5 | 178.0 | 8.220 | 34.710 | 8.070 | 2.700 | 5.680 | 2.230 |
| 195.0 | 14.6 | 194.4 | 8.100 | 37.410 | 7.620 | 2.760 | 7.270 | 2.250 |
| 210.0 | 14.4 | 212.7 | 10.380 | 39.550 | 7.420 | 2.800 | 9.610 | 2.100 |
| 225.0 | 14.2 | 230.3 | 11.050 | 37.540 | 5.660 | 3.040 | 11.510 | 1.780 |
| 240.0 | 14.3 | 244.5 | 12.680 | 40.010 | 5.070 | 3.240 | 12.560 | 1.500 |
| 255.0 | 14.6 | 258.5 | 12.400 | 43.410 | 4.320 | 3.380 | 13.020 | 0.930 |
| 270.0 | 14.7 | 272.6 | 11.330 | 44.890 | 2.730 | 3.440 | 13.160 | 0.460 |
| 285.0 | 14.8 | 286.5 | 12.110 | 49.350 | 4.710 | 3.440 | 12.510 | 1.120 |
| 300.0 | 14.7 | 300.1 | 11.800 | 46.040 | 6.680 | 3.360 | 10.040 | 1.910 |
| 315.0 | 14.5 | 313.5 | 11.990 | 50.220 | 8.130 | 3.250 | 8.450 | 2.480 |
| 330.0 | 14.2 | 327.0 | 12.270 | 52.870 | 10.740 | 3.130 | 7.820 | 2.830 |
| 345.0 | 13.9 | 341.0 | 12.710 | 41.670 | 10.190 | 3.020 | 7.300 | 3.040 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.54: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 19.7 | -1.5 | 9.960 | 31.890 | 9.470 | 3.040 | 5.730 | 3.000 |
| 15.0 | 19.7 | 13.8 | 11.190 | 28.770 | 9.770 | 3.020 | 5.460 | 2.950 |
| 30.0 | 19.8 | 29.0 | 10.240 | 29.160 | 9.110 | 3.030 | 5.290 | 2.800 |
| 45.0 | 19.8 | 44.0 | 12.000 | 30.880 | 8.330 | 3.040 | 5.060 | 2.520 |
| 60.0 | 19.9 | 58.6 | 9.980 | 30.490 | 6.270 | 3.050 | 4.720 | 2.040 |
| 75.0 | 20.1 | 73.8 | 10.770 | 41.640 | 3.970 | 3.060 | 7.850 | 1.310 |
| 90.0 | 20.1 | 89.0 | 12.170 | 45.090 | 2.050 | 3.040 | 8.760 | 0.510 |
| 105.0 | 20.1 | 104.1 | 9.550 | 43.980 | 5.390 | 3.020 | 8.940 | 0.720 |
| 120.0 | 19.9 | 118.6 | 9.240 | 37.810 | 4.200 | 2.870 | 8.760 | 1.160 |
| 135.0 | 19.9 | 133.6 | 8.290 | 45.750 | 5.510 | 2.760 | 6.700 | 1.480 |
| 150.0 | 19.8 | 148.5 | 8.040 | 43.220 | 6.340 | 2.770 | 5.890 | 1.820 |
| 165.0 | 19.8 | 163.7 | 8.200 | 35.370 | 7.140 | 2.730 | 5.020 | 2.060 |
| 180.0 | 20.0 | 179.4 | 8.870 | 37.510 | 7.530 | 2.810 | 5.760 | 2.310 |
| 195.0 | 19.9 | 194.4 | 8.400 | 41.330 | 7.400 | 2.660 | 7.470 | 2.020 |
| 210.0 | 19.9 | 209.6 | 8.040 | 46.910 | 6.090 | 2.720 | 9.530 | 1.850 |
| 225.0 | 19.8 | 225.8 | 9.830 | 44.310 | 5.740 | 2.830 | 11.740 | 1.690 |
| 240.0 | 19.7 | 241.8 | 11.420 | 44.360 | 4.400 | 3.090 | 14.120 | 1.440 |
| 255.0 | 19.9 | 256.9 | 12.490 | 49.890 | 3.950 | 3.250 | 14.580 | 0.930 |
| 270.0 | 19.9 | 271.6 | 13.120 | 51.950 | 2.820 | 3.370 | 14.350 | 0.510 |
| 285.0 | 20.0 | 286.0 | 11.570 | 61.440 | 4.040 | 3.390 | 13.870 | 1.100 |
| 300.0 | 19.9 | 300.2 | 13.190 | 49.340 | 6.540 | 3.340 | 10.480 | 1.890 |
| 315.0 | 19.9 | 314.3 | 12.170 | 45.950 | 8.110 | 3.260 | 8.440 | 2.440 |
| 330.0 | 19.8 | 328.7 | 10.260 | 39.290 | 8.590 | 3.170 | 7.070 | 2.770 |
| 345.0 | 19.7 | 343.5 | 10.460 | 34.470 | 10.760 | 3.090 | 6.220 | 2.930 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.55: *Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots*

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.0 | -0.6 | 10.870 | 31.330 | 9.020 | 3.120 | 5.560 | 2.880 |
| 15.0 | 25.0 | 14.6 | 10.760 | 28.470 | 9.180 | 3.100 | 5.250 | 2.840 |
| 30.0 | 25.0 | 29.7 | 12.110 | 28.450 | 9.010 | 3.090 | 5.170 | 2.720 |
| 45.0 | 25.0 | 44.6 | 10.610 | 28.530 | 7.150 | 3.090 | 5.090 | 2.460 |
| 60.0 | 25.0 | 59.2 | 13.060 | 31.840 | 7.650 | 3.060 | 4.930 | 2.020 |
| 75.0 | 25.1 | 74.2 | 10.510 | 43.010 | 4.130 | 3.010 | 8.680 | 1.350 |
| 90.0 | 25.2 | 89.2 | 14.160 | 47.350 | 3.070 | 2.960 | 9.560 | 0.610 |
| 105.0 | 25.1 | 104.1 | 11.970 | 51.140 | 4.430 | 2.890 | 9.530 | 0.670 |
| 120.0 | 25.0 | 119.0 | 10.300 | 56.170 | 4.160 | 2.820 | 10.540 | 1.110 |
| 135.0 | 24.8 | 133.8 | 11.430 | 55.570 | 6.020 | 2.820 | 10.980 | 1.650 |
| 150.0 | 24.8 | 148.3 | 7.760 | 52.950 | 5.550 | 2.510 | 5.760 | 1.720 |
| 165.0 | 25.6 | 164.1 | 8.440 | 30.730 | 6.660 | 2.980 | 4.440 | 2.190 |
| 180.0 | 25.9 | 179.3 | 7.510 | 31.060 | 6.370 | 2.220 | 3.720 | 1.700 |
| 195.0 | 25.7 | 196.3 | 9.760 | 40.530 | 7.710 | 3.100 | 7.940 | 2.380 |
| 210.0 | 25.1 | 210.4 | 8.630 | 43.890 | 6.440 | 2.630 | 9.890 | 1.920 |
| 225.0 | 24.9 | 225.0 | 8.310 | 54.620 | 6.340 | 2.830 | 13.050 | 1.710 |
| 240.0 | 24.9 | 240.5 | 13.100 | 53.530 | 5.140 | 2.890 | 14.800 | 1.380 |
| 255.0 | 25.1 | 256.0 | 10.530 | 56.570 | 3.170 | 3.170 | 15.690 | 0.920 |
| 270.0 | 25.0 | 271.1 | 11.950 | 55.320 | 3.030 | 3.300 | 15.420 | 0.560 |
| 285.0 | 25.1 | 285.8 | 14.380 | 72.290 | 3.860 | 3.350 | 15.120 | 1.120 |
| 300.0 | 25.1 | 300.1 | 13.960 | 56.380 | 5.660 | 3.330 | 10.680 | 1.860 |
| 315.0 | 25.1 | 314.7 | 12.620 | 46.400 | 7.380 | 3.290 | 8.640 | 2.370 |
| 330.0 | 25.0 | 329.4 | 11.840 | 42.230 | 8.800 | 3.220 | 7.240 | 2.670 |
| 345.0 | 25.0 | 344.3 | 10.870 | 32.320 | 9.420 | 3.180 | 6.140 | 2.830 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.56: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.2 | -0.2 | 11.940 | 30.530 | 10.220 | 3.210 | 5.390 | 2.760 |
| 15.0 | 30.2 | 15.0 | 12.720 | 30.950 | 9.400 | 3.180 | 5.290 | 2.730 |
| 30.0 | 30.2 | 30.0 | 10.610 | 31.150 | 8.520 | 3.160 | 5.400 | 2.640 |
| 45.0 | 30.2 | 44.9 | 10.610 | 31.340 | 7.900 | 3.140 | 5.530 | 2.400 |
| 60.0 | 30.2 | 59.6 | 12.140 | 31.610 | 6.900 | 3.070 | 5.590 | 2.000 |
| 75.0 | 30.2 | 74.3 | 12.610 | 45.280 | 4.570 | 2.990 | 9.730 | 1.370 |
| 90.0 | 30.2 | 89.3 | 10.560 | 51.360 | 3.030 | 2.890 | 10.700 | 0.690 |
| 105.0 | 30.2 | 104.1 | 9.980 | 58.830 | 4.630 | 2.860 | 10.400 | 0.700 |
| 120.0 | 30.0 | 119.4 | 9.280 | 47.750 | 3.490 | 2.740 | 12.710 | 1.090 |
| 135.0 | 29.8 | 133.7 | 7.990 | 53.490 | 4.480 | 2.690 | 11.380 | 1.460 |
| 150.0 | 30.0 | 148.1 | 7.250 | 58.980 | 5.460 | 2.320 | 7.560 | 1.720 |
| 165.0 | 30.2 | 162.5 | 7.880 | 43.870 | 6.290 | 2.890 | 6.160 | 2.190 |
| 180.0 | 30.8 | 177.9 | 6.260 | 40.830 | 8.530 | 2.040 | 5.620 | 2.130 |
| 195.0 | 31.6 | 194.5 | 7.150 | 37.060 | 6.840 | 2.090 | 7.000 | 1.930 |
| 210.0 | 30.8 | 210.9 | 10.640 | 53.410 | 6.740 | 2.600 | 10.350 | 2.000 |
| 225.0 | 30.1 | 225.2 | 8.270 | 52.760 | 5.390 | 2.690 | 12.430 | 1.650 |
| 240.0 | 30.0 | 240.1 | 9.480 | 55.280 | 4.970 | 2.810 | 15.070 | 1.390 |
| 255.0 | 30.1 | 255.5 | 12.730 | 66.260 | 3.390 | 3.090 | 15.830 | 0.960 |
| 270.0 | 30.1 | 270.7 | 10.970 | 68.700 | 3.280 | 3.230 | 16.210 | 0.640 |
| 285.0 | 30.2 | 285.5 | 11.210 | 67.610 | 4.180 | 3.280 | 15.520 | 1.140 |
| 300.0 | 30.2 | 300.2 | 12.360 | 55.670 | 7.340 | 3.320 | 11.270 | 1.820 |
| 315.0 | 30.2 | 314.9 | 11.690 | 51.290 | 7.330 | 3.320 | 8.800 | 2.310 |
| 330.0 | 30.2 | 329.7 | 11.040 | 41.990 | 8.510 | 3.280 | 6.920 | 2.580 |
| 345.0 | 30.2 | 344.7 | 11.790 | 35.520 | 9.410 | 3.250 | 6.180 | 2.710 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.57: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.5 | -110.6 | 15.010 | 53.140 | 10.480 | 3.930 | 16.320 | 3.240 |
| 15.0 | -2.8 | 189.5 | 12.900 | 47.680 | 14.150 | 3.750 | 8.570 | 3.600 |
| 30.0 | -4.0 | -145.1 | 13.100 | 45.310 | 12.400 | 3.740 | 12.480 | 3.440 |
| 45.0 | 2.0 | 30.6 | 12.030 | 41.770 | 10.030 | 3.770 | 8.720 | 3.200 |
| 60.0 | 3.8 | 54.5 | 16.320 | 39.890 | 8.480 | 3.900 | 8.330 | 2.410 |
| 75.0 | 2.8 | 85.5 | 14.710 | 40.390 | 3.780 | 4.060 | 9.500 | 0.710 |
| 90.0 | 0.3 | 106.0 | 13.620 | 47.350 | 6.440 | 4.060 | 10.430 | 1.270 |
| 105.0 | -2.3 | 118.7 | 14.700 | 49.020 | 8.170 | 3.990 | 10.740 | 1.980 |
| 120.0 | -4.4 | 132.0 | 13.570 | 49.930 | 8.560 | 3.890 | 9.640 | 2.620 |
| 135.0 | -5.1 | 146.2 | 14.140 | 49.960 | 11.720 | 3.800 | 7.880 | 3.140 |
| 150.0 | -4.3 | 160.0 | 13.360 | 46.120 | 13.260 | 3.720 | 5.420 | 3.440 |
| 165.0 | -2.8 | 173.3 | 12.860 | 36.900 | 13.420 | 3.720 | 4.350 | 3.610 |
| 180.0 | 0.4 | 310.9 | 13.630 | 57.050 | 11.530 | 3.980 | 15.820 | 3.050 |
| 195.0 | 1.1 | 234.8 | 13.520 | 44.960 | 10.150 | 4.180 | 12.370 | 2.650 |
| 210.0 | -0.2 | 245.4 | 15.280 | 46.370 | 8.900 | 4.340 | 12.570 | 2.230 |
| 225.0 | -0.7 | 253.7 | 14.990 | 51.090 | 7.340 | 4.460 | 12.920 | 1.690 |
| 240.0 | -1.1 | 261.7 | 15.070 | 53.610 | 5.700 | 4.550 | 13.050 | 1.120 |
| 255.0 | -2.3 | 269.6 | 16.480 | 66.760 | 6.300 | 4.630 | 13.210 | 0.650 |
| 270.0 | -2.8 | 277.2 | 15.620 | 60.050 | 3.750 | 4.610 | 13.040 | 0.730 |
| 285.0 | -3.5 | 283.1 | 16.720 | 62.150 | 5.370 | 4.570 | 12.910 | 1.170 |
| 300.0 | -3.5 | 288.4 | 14.190 | 65.240 | 6.330 | 4.570 | 13.060 | 1.600 |
| 315.0 | -3.9 | 295.7 | 14.500 | 60.830 | 8.520 | 4.500 | 13.310 | 2.070 |
| 330.0 | -0.6 | 141.1 | 14.180 | 55.590 | 9.240 | 4.340 | 17.270 | 2.230 |
| 345.0 | 0.6 | 141.0 | 13.620 | 48.720 | 10.260 | 4.200 | 15.110 | 2.600 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.58: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 1.7 | -41.7 | 14.800 | 79.240 | 12.100 | 4.130 | 12.730 | 3.010 |
| 15.0 | 1.3 | -140.8 | 14.000 | 48.270 | 10.030 | 3.770 | 9.780 | 2.900 |
| 30.0 | 1.9 | -124.7 | 13.510 | 44.830 | 13.290 | 3.830 | 12.950 | 2.660 |
| 45.0 | 2.6 | -114.2 | 14.050 | 44.190 | 10.940 | 3.890 | 13.860 | 2.350 |
| 60.0 | 3.5 | -61.9 | 14.570 | 47.960 | 12.820 | 3.910 | 21.000 | 2.430 |
| 75.0 | 5.8 | 71.4 | 13.700 | 37.400 | 8.130 | 3.990 | 8.250 | 1.510 |
| 90.0 | 5.0 | 94.4 | 14.840 | 39.890 | 3.010 | 4.070 | 9.770 | 0.590 |
| 105.0 | 4.3 | 108.2 | 12.850 | 47.460 | 7.200 | 4.050 | 9.810 | 1.290 |
| 120.0 | 3.4 | 118.0 | 12.680 | 52.150 | 9.460 | 3.960 | 9.620 | 1.820 |
| 135.0 | 2.5 | 127.1 | 13.750 | 54.130 | 9.600 | 3.900 | 9.320 | 2.240 |
| 150.0 | 1.9 | 134.9 | 13.350 | 55.650 | 9.000 | 3.840 | 8.830 | 2.570 |
| 165.0 | 1.5 | 143.3 | 13.400 | 55.410 | 10.670 | 3.770 | 8.240 | 2.850 |
| 180.0 | 1.3 | 153.9 | 13.260 | 44.340 | 12.090 | 3.700 | 7.470 | 3.140 |
| 195.0 | 1.8 | 168.9 | 12.560 | 45.540 | 15.740 | 3.690 | 6.630 | 3.380 |
| 210.0 | 4.5 | 235.3 | 13.990 | 52.360 | 11.830 | 4.200 | 12.110 | 2.510 |
| 225.0 | 4.1 | 248.3 | 15.750 | 53.330 | 8.970 | 4.360 | 12.530 | 1.950 |
| 240.0 | 3.6 | 258.0 | 15.880 | 52.670 | 6.590 | 4.470 | 12.890 | 1.370 |
| 255.0 | 3.6 | 268.2 | 15.690 | 60.940 | 5.030 | 4.540 | 13.120 | 0.800 |
| 270.0 | 3.5 | 276.9 | 17.010 | 58.130 | 3.030 | 4.580 | 13.180 | 0.610 |
| 285.0 | 3.6 | 285.8 | 16.240 | 67.810 | 4.240 | 4.540 | 13.020 | 1.120 |
| 300.0 | 3.0 | 292.4 | 16.280 | 68.270 | 6.070 | 4.520 | 12.800 | 1.630 |
| 315.0 | 2.6 | 298.6 | 18.060 | 90.290 | 6.410 | 4.480 | 12.990 | 2.060 |
| 330.0 | 2.3 | 306.2 | 16.840 | 90.230 | 7.360 | 4.390 | 12.830 | 2.490 |
| 345.0 | 2.0 | 312.9 | 16.320 | 90.120 | 8.310 | 4.290 | 12.870 | 2.830 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.59: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 6.9 | -37.5 | 15.710 | 60.950 | 10.380 | 4.070 | 12.820 | 3.180 |
| 15.0 | 6.8 | -31.4 | 14.960 | 59.550 | 11.800 | 3.990 | 12.400 | 3.340 |
| 30.0 | 6.8 | -26.2 | 14.540 | 55.910 | 10.660 | 3.920 | 12.020 | 3.410 |
| 45.0 | 7.7 | -78.8 | 14.410 | 44.380 | 11.000 | 3.940 | 17.950 | 2.110 |
| 60.0 | 6.9 | -10.9 | 13.370 | 41.340 | 11.220 | 3.820 | 12.260 | 3.430 |
| 75.0 | 7.6 | 24.5 | 13.240 | 40.060 | 11.290 | 3.810 | 10.950 | 3.160 |
| 90.0 | 9.7 | 88.3 | 14.330 | 45.520 | 2.400 | 4.050 | 9.450 | 0.460 |
| 105.0 | 9.5 | 103.2 | 14.270 | 50.830 | 5.880 | 4.040 | 9.350 | 0.900 |
| 120.0 | 8.7 | 114.3 | 13.920 | 52.050 | 8.430 | 3.900 | 8.060 | 1.480 |
| 135.0 | 8.1 | 125.0 | 12.300 | 41.910 | 8.390 | 3.860 | 7.050 | 1.950 |
| 150.0 | 7.6 | 134.4 | 14.190 | 40.650 | 10.810 | 3.760 | 6.230 | 2.300 |
| 165.0 | 7.3 | 144.5 | 13.230 | 43.230 | 10.680 | 3.730 | 6.290 | 2.590 |
| 180.0 | 7.1 | 153.9 | 12.270 | 43.640 | 11.840 | 3.710 | 6.310 | 2.820 |
| 195.0 | 7.0 | 165.7 | 11.770 | 37.200 | 13.110 | 3.690 | 6.030 | 3.040 |
| 210.0 | 8.8 | 220.9 | 14.220 | 58.560 | 14.460 | 3.980 | 11.370 | 2.740 |
| 225.0 | 8.8 | 240.1 | 15.830 | 49.090 | 7.960 | 4.230 | 12.540 | 2.150 |
| 240.0 | 8.8 | 251.8 | 19.900 | 58.090 | 6.750 | 4.330 | 13.230 | 1.630 |
| 255.0 | 8.9 | 263.4 | 14.470 | 55.340 | 5.610 | 4.470 | 13.710 | 1.010 |
| 270.0 | 8.9 | 275.4 | 15.670 | 64.350 | 3.290 | 4.510 | 14.040 | 0.610 |
| 285.0 | 9.1 | 286.9 | 17.110 | 84.430 | 5.210 | 4.470 | 13.880 | 1.210 |
| 300.0 | 8.9 | 298.5 | 15.590 | 75.030 | 6.240 | 4.370 | 12.630 | 2.020 |
| 315.0 | 7.9 | 306.1 | 15.320 | 62.320 | 7.870 | 4.270 | 12.340 | 2.500 |
| 330.0 | 7.3 | 310.9 | 15.050 | 74.960 | 7.830 | 4.220 | 12.860 | 2.740 |
| 345.0 | 7.1 | 317.3 | 14.290 | 74.100 | 10.790 | 4.150 | 12.790 | 3.030 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.60: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 11.9 | -21.9 | 14.670 | 82.730 | 13.800 | 3.910 | 12.190 | 3.550 |
| 15.0 | 11.7 | -12.9 | 14.720 | 64.060 | 14.880 | 3.830 | 11.630 | 3.630 |
| 30.0 | 11.8 | 0.1 | 14.120 | 59.350 | 15.200 | 3.770 | 10.780 | 3.670 |
| 45.0 | 12.1 | 19.1 | 12.880 | 48.490 | 11.010 | 3.770 | 9.440 | 3.550 |
| 60.0 | 12.7 | 42.5 | 15.380 | 40.200 | 9.730 | 3.850 | 6.890 | 3.030 |
| 75.0 | 14.8 | 72.7 | 15.230 | 44.280 | 5.390 | 3.950 | 8.950 | 1.480 |
| 90.0 | 14.7 | 88.3 | 14.410 | 47.830 | 2.360 | 3.990 | 9.940 | 0.500 |
| 105.0 | 14.6 | 102.6 | 14.480 | 60.460 | 4.220 | 3.920 | 9.620 | 0.780 |
| 120.0 | 13.9 | 115.1 | 14.140 | 50.280 | 5.610 | 3.850 | 7.930 | 1.340 |
| 135.0 | 13.5 | 129.1 | 12.300 | 53.000 | 8.430 | 3.710 | 7.010 | 1.860 |
| 150.0 | 13.4 | 143.3 | 12.050 | 48.310 | 7.850 | 3.620 | 6.100 | 2.220 |
| 165.0 | 13.2 | 158.7 | 13.520 | 49.910 | 10.900 | 3.600 | 6.030 | 2.560 |
| 180.0 | 14.0 | 176.8 | 10.910 | 43.750 | 9.150 | 3.590 | 6.480 | 2.770 |
| 195.0 | 13.9 | 196.1 | 14.770 | 54.420 | 11.690 | 3.590 | 9.450 | 2.670 |
| 210.0 | 14.0 | 215.4 | 12.960 | 46.370 | 8.240 | 3.760 | 11.530 | 2.460 |
| 225.0 | 14.1 | 231.1 | 14.490 | 48.580 | 6.910 | 3.940 | 12.760 | 2.040 |
| 240.0 | 14.2 | 245.1 | 14.260 | 84.700 | 5.860 | 4.150 | 14.360 | 1.720 |
| 255.0 | 14.3 | 259.0 | 15.590 | 91.170 | 5.660 | 4.330 | 15.530 | 1.120 |
| 270.0 | 14.4 | 273.2 | 16.320 | 61.400 | 3.150 | 4.390 | 15.360 | 0.600 |
| 285.0 | 14.5 | 286.6 | 16.240 | 77.370 | 4.880 | 4.370 | 15.190 | 1.210 |
| 300.0 | 14.4 | 300.2 | 15.020 | 72.310 | 8.620 | 4.250 | 12.410 | 2.120 |
| 315.0 | 14.2 | 312.9 | 14.610 | 90.480 | 8.600 | 4.210 | 11.700 | 2.820 |
| 330.0 | 13.3 | 324.8 | 14.920 | 82.370 | 10.040 | 4.040 | 11.140 | 3.230 |
| 345.0 | 12.1 | 330.4 | 14.070 | 68.580 | 11.740 | 3.970 | 11.930 | 3.420 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.61: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 19.2 | -2.9 | 12.650 | 42.850 | 11.560 | 3.880 | 8.240 | 3.520 |
| 15.0 | 19.2 | 12.2 | 12.870 | 40.940 | 10.140 | 3.840 | 7.480 | 3.470 |
| 30.0 | 19.3 | 27.5 | 14.280 | 39.300 | 10.900 | 3.830 | 6.770 | 3.300 |
| 45.0 | 19.4 | 42.5 | 15.300 | 39.530 | 9.520 | 3.840 | 6.130 | 2.950 |
| 60.0 | 19.5 | 57.0 | 13.220 | 43.780 | 8.160 | 3.850 | 5.500 | 2.400 |
| 75.0 | 19.9 | 73.4 | 14.920 | 50.730 | 6.020 | 3.880 | 10.270 | 1.500 |
| 90.0 | 19.8 | 88.3 | 15.530 | 57.420 | 3.960 | 3.900 | 11.340 | 0.600 |
| 105.0 | 19.6 | 102.9 | 13.570 | 66.050 | 10.780 | 3.800 | 10.900 | 0.810 |
| 120.0 | 19.5 | 117.0 | 12.490 | 70.260 | 5.390 | 3.740 | 9.310 | 1.260 |
| 135.0 | 19.3 | 131.9 | 12.740 | 64.800 | 6.260 | 3.570 | 8.950 | 1.710 |
| 150.0 | 19.2 | 146.9 | 10.430 | 56.960 | 7.100 | 3.560 | 8.850 | 2.200 |
| 165.0 | 19.6 | 163.2 | 11.000 | 56.370 | 9.130 | 3.760 | 7.170 | 2.710 |
| 180.0 | 19.7 | 178.9 | 10.820 | 44.930 | 7.230 | 3.520 | 7.040 | 2.440 |
| 195.0 | 19.6 | 195.3 | 10.880 | 49.250 | 10.270 | 3.600 | 9.910 | 2.720 |
| 210.0 | 19.5 | 210.8 | 12.380 | 59.230 | 8.430 | 3.490 | 11.300 | 2.280 |
| 225.0 | 19.3 | 227.1 | 15.340 | 56.490 | 7.270 | 3.700 | 13.470 | 1.980 |
| 240.0 | 19.5 | 242.2 | 12.730 | 70.460 | 6.480 | 3.970 | 15.390 | 1.620 |
| 255.0 | 19.7 | 257.3 | 16.180 | 60.820 | 4.970 | 4.190 | 16.620 | 1.070 |
| 270.0 | 19.7 | 272.1 | 14.920 | 66.540 | 3.460 | 4.290 | 17.040 | 0.620 |
| 285.0 | 19.7 | 286.3 | 16.460 | 75.580 | 4.660 | 4.300 | 17.070 | 1.210 |
| 300.0 | 19.7 | 300.5 | 13.560 | 81.120 | 6.620 | 4.220 | 13.480 | 2.110 |
| 315.0 | 19.6 | 314.1 | 15.260 | 90.180 | 8.830 | 4.140 | 11.640 | 2.770 |
| 330.0 | 19.4 | 328.2 | 13.590 | 62.680 | 10.180 | 4.030 | 10.410 | 3.190 |
| 345.0 | 19.3 | 342.5 | 12.980 | 51.640 | 10.650 | 3.940 | 9.030 | 3.430 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.62: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 24.8 | -1.3 | 12.570 | 41.690 | 11.060 | 3.950 | 7.760 | 3.370 |
| 15.0 | 24.7 | 13.8 | 13.080 | 38.150 | 10.950 | 3.910 | 6.930 | 3.320 |
| 30.0 | 24.8 | 29.0 | 12.700 | 37.890 | 10.190 | 3.870 | 6.410 | 3.180 |
| 45.0 | 24.8 | 43.7 | 13.470 | 45.840 | 9.480 | 3.860 | 6.000 | 2.860 |
| 60.0 | 24.7 | 58.0 | 14.170 | 48.870 | 9.100 | 3.850 | 5.780 | 2.350 |
| 75.0 | 24.9 | 73.6 | 14.030 | 53.640 | 5.160 | 3.840 | 11.130 | 1.550 |
| 90.0 | 24.8 | 88.5 | 13.600 | 68.230 | 15.710 | 3.780 | 12.010 | 0.820 |
| 105.0 | 24.7 | 103.0 | 14.290 | 76.620 | 13.330 | 3.770 | 12.480 | 0.840 |
| 120.0 | 24.6 | 118.0 | 12.810 | 75.410 | 5.370 | 3.670 | 10.710 | 1.230 |
| 135.0 | 24.6 | 133.1 | 10.670 | 66.450 | 5.800 | 3.580 | 11.030 | 1.700 |
| 150.0 | 24.5 | 147.2 | 8.890 | 63.990 | 6.530 | 3.390 | 7.470 | 1.890 |
| 165.0 | 25.0 | 162.8 | 11.290 | 68.380 | 8.270 | 3.070 | 5.510 | 2.110 |
| 180.0 | 26.0 | 179.2 | 8.270 | 38.100 | 6.560 | 2.970 | 4.470 | 2.180 |
| 195.0 | 25.6 | 194.8 | 8.540 | 44.540 | 6.450 | 3.210 | 6.760 | 2.180 |
| 210.0 | 24.8 | 210.2 | 10.480 | 55.920 | 9.010 | 3.420 | 11.310 | 2.220 |
| 225.0 | 24.8 | 224.8 | 10.500 | 59.480 | 6.500 | 3.480 | 12.270 | 1.740 |
| 240.0 | 24.7 | 240.6 | 14.440 | 61.640 | 5.380 | 3.760 | 16.100 | 1.600 |
| 255.0 | 24.9 | 256.1 | 14.550 | 78.530 | 3.730 | 4.050 | 18.260 | 1.080 |
| 270.0 | 24.8 | 271.4 | 14.310 | 81.920 | 4.230 | 4.200 | 19.010 | 0.660 |
| 285.0 | 24.9 | 285.8 | 11.520 | 90.100 | 4.130 | 4.230 | 18.490 | 1.230 |
| 300.0 | 24.9 | 300.4 | 15.400 | 90.230 | 8.230 | 4.260 | 14.060 | 2.130 |
| 315.0 | 24.9 | 314.9 | 14.290 | 74.460 | 8.650 | 4.140 | 12.310 | 2.710 |
| 330.0 | 24.8 | 329.3 | 14.560 | 56.900 | 10.330 | 4.070 | 9.760 | 3.100 |
| 345.0 | 24.8 | 343.9 | 12.650 | 47.440 | 10.180 | 4.010 | 9.000 | 3.300 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.63: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.1 | -0.5 | 15.400 | 44.780 | 10.050 | 4.040 | 7.350 | 3.230 |
| 15.0 | 30.0 | 14.6 | 12.400 | 37.640 | 10.270 | 3.980 | 6.530 | 3.210 |
| 30.0 | 30.0 | 29.6 | 13.040 | 38.250 | 10.240 | 3.930 | 6.230 | 3.070 |
| 45.0 | 30.0 | 44.4 | 14.200 | 43.300 | 9.120 | 3.880 | 5.820 | 2.780 |
| 60.0 | 29.9 | 58.8 | 15.810 | 48.990 | 7.730 | 3.820 | 5.810 | 2.310 |
| 75.0 | 30.0 | 73.8 | 14.670 | 59.420 | 5.400 | 3.770 | 12.370 | 1.580 |
| 90.0 | 29.9 | 88.6 | 16.630 | 67.080 | 13.090 | 3.720 | 13.200 | 0.870 |
| 105.0 | 29.8 | 103.3 | 14.640 | 73.070 | 5.900 | 3.640 | 13.560 | 0.810 |
| 120.0 | 29.6 | 118.4 | 12.410 | 69.070 | 6.980 | 3.650 | 13.540 | 1.280 |
| 135.0 | 29.4 | 132.7 | 9.700 | 66.540 | 5.640 | 3.510 | 11.430 | 1.620 |
| 150.0 | 29.2 | 146.3 | 8.740 | 62.000 | 6.290 | 3.150 | 8.290 | 1.940 |
| 165.0 | 29.4 | 159.7 | 10.880 | 74.150 | 8.100 | 3.400 | 7.880 | 2.490 |
| 180.0 | 30.3 | 176.7 | 8.570 | 48.420 | 8.490 | 2.840 | 6.820 | 2.410 |
| 195.0 | 30.6 | 196.2 | 12.870 | 60.330 | 10.260 | 3.690 | 12.440 | 2.960 |
| 210.0 | 30.9 | 210.9 | 9.100 | 62.780 | 6.940 | 3.470 | 11.330 | 2.420 |
| 225.0 | 30.0 | 224.9 | 9.540 | 65.680 | 5.680 | 3.300 | 12.470 | 1.750 |
| 240.0 | 29.7 | 240.1 | 12.440 | 62.030 | 6.100 | 3.690 | 17.070 | 1.700 |
| 255.0 | 29.6 | 254.9 | 15.430 | 90.070 | 10.510 | 4.050 | 18.850 | 1.360 |
| 270.0 | 29.9 | 270.8 | 14.740 | 90.220 | 4.050 | 4.160 | 20.270 | 0.730 |
| 285.0 | 30.0 | 285.2 | 11.020 | 90.470 | 3.930 | 4.400 | 19.630 | 1.320 |
| 300.0 | 30.1 | 300.4 | 16.830 | 79.690 | 8.150 | 4.180 | 13.460 | 2.060 |
| 315.0 | 30.1 | 315.1 | 15.420 | 70.970 | 9.020 | 4.150 | 11.880 | 2.630 |
| 330.0 | 30.1 | 329.8 | 14.530 | 55.050 | 9.190 | 4.130 | 10.260 | 2.980 |
| 345.0 | 30.1 | 344.6 | 14.990 | 48.820 | 10.960 | 4.070 | 8.330 | 3.160 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.64: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.7 | -1.3 | 13.730 | 44.080 | 8.070 | 4.160 | 7.360 | 2.530 |
| 15.0 | 0.7 | 12.9 | 13.110 | 37.350 | 7.950 | 4.100 | 6.620 | 2.450 |
| 30.0 | 1.7 | 26.6 | 13.190 | 34.630 | 6.660 | 4.080 | 6.130 | 2.260 |
| 45.0 | 2.5 | 41.8 | 14.250 | 35.480 | 6.480 | 4.120 | 5.880 | 1.930 |
| 60.0 | 2.6 | 58.7 | 14.180 | 35.200 | 5.050 | 4.100 | 5.590 | 1.360 |
| 75.0 | 1.7 | 77.0 | 15.310 | 35.340 | 2.450 | 4.170 | 5.480 | 0.610 |
| 90.0 | 0.9 | 94.9 | 14.600 | 36.320 | 3.250 | 4.200 | 5.730 | 0.410 |
| 105.0 | 0.1 | 109.7 | 16.190 | 43.060 | 5.370 | 4.170 | 6.050 | 0.960 |
| 120.0 | -1.2 | 125.3 | 13.390 | 37.810 | 5.420 | 4.110 | 6.380 | 1.520 |
| 135.0 | -2.4 | 140.3 | 16.240 | 38.080 | 6.270 | 4.130 | 5.830 | 2.000 |
| 150.0 | -2.9 | 154.1 | 14.030 | 34.320 | 7.470 | 4.070 | 4.440 | 2.300 |
| 165.0 | -2.8 | 165.8 | 13.710 | 32.840 | 8.540 | 4.050 | 3.060 | 2.470 |
| 180.0 | -2.1 | 177.6 | 13.860 | 29.840 | 8.010 | 4.040 | 3.000 | 2.560 |
| 195.0 | -1.0 | 191.8 | 13.380 | 36.750 | 10.100 | 4.100 | 4.520 | 2.580 |
| 210.0 | 0.1 | 209.9 | 14.450 | 41.320 | 8.620 | 4.180 | 6.490 | 2.390 |
| 225.0 | 0.3 | 229.9 | 14.470 | 42.140 | 6.600 | 4.280 | 7.940 | 1.900 |
| 240.0 | -0.1 | 248.0 | 15.960 | 52.080 | 4.820 | 4.450 | 9.090 | 1.240 |
| 255.0 | -0.9 | 262.0 | 16.280 | 52.400 | 2.490 | 4.490 | 9.290 | 0.600 |
| 270.0 | -1.6 | 274.8 | 16.420 | 46.560 | 1.530 | 4.520 | 9.360 | 0.260 |
| 285.0 | -2.4 | 286.8 | 15.140 | 44.970 | 2.620 | 4.470 | 9.100 | 0.780 |
| 300.0 | -3.7 | 302.0 | 14.610 | 48.060 | 4.230 | 4.450 | 8.920 | 1.480 |
| 315.0 | -3.6 | 316.8 | 13.990 | 46.460 | 7.230 | 4.390 | 8.470 | 1.990 |
| 330.0 | -2.9 | 331.7 | 14.310 | 54.250 | 6.680 | 4.280 | 8.050 | 2.290 |
| 345.0 | -1.8 | 345.9 | 14.340 | 51.210 | 7.600 | 4.200 | 7.680 | 2.460 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.65: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 2.6 | -22.8 | 15.670 | 52.650 | 8.140 | 4.190 | 8.740 | 2.370 |
| 15.0 | 2.9 | -7.4 | 15.540 | 45.040 | 8.680 | 4.110 | 8.080 | 2.520 |
| 30.0 | 3.4 | 9.2 | 15.110 | 45.730 | 9.020 | 4.060 | 7.230 | 2.510 |
| 45.0 | 4.1 | 27.0 | 13.590 | 35.950 | 7.750 | 4.060 | 6.040 | 2.310 |
| 60.0 | 4.7 | 48.0 | 13.870 | 34.960 | 6.420 | 4.090 | 5.070 | 1.790 |
| 75.0 | 4.9 | 66.8 | 13.940 | 33.660 | 4.130 | 4.180 | 5.100 | 1.100 |
| 90.0 | 4.6 | 83.1 | 14.220 | 35.280 | 2.070 | 4.160 | 5.550 | 0.400 |
| 105.0 | 4.3 | 97.1 | 14.690 | 38.640 | 2.400 | 4.180 | 5.440 | 0.400 |
| 120.0 | 4.0 | 108.9 | 15.030 | 37.610 | 4.300 | 4.160 | 5.050 | 0.870 |
| 135.0 | 3.5 | 121.0 | 14.010 | 35.990 | 5.560 | 4.140 | 4.450 | 1.340 |
| 150.0 | 3.1 | 133.4 | 13.880 | 35.050 | 6.770 | 4.100 | 3.830 | 1.750 |
| 165.0 | 2.8 | 145.1 | 13.280 | 33.700 | 7.700 | 4.060 | 3.410 | 2.050 |
| 180.0 | 2.6 | 156.9 | 14.460 | 32.950 | 8.830 | 4.050 | 3.030 | 2.280 |
| 195.0 | 2.5 | 169.3 | 15.600 | 31.360 | 10.200 | 4.040 | 2.910 | 2.460 |
| 210.0 | 2.7 | 183.2 | 13.960 | 32.820 | 8.650 | 4.060 | 3.370 | 2.560 |
| 225.0 | 3.7 | 209.2 | 13.530 | 41.990 | 7.980 | 4.160 | 5.590 | 2.350 |
| 240.0 | 4.6 | 237.6 | 13.370 | 43.020 | 5.690 | 4.380 | 8.390 | 1.620 |
| 255.0 | 4.5 | 251.8 | 14.750 | 43.110 | 4.690 | 4.440 | 8.970 | 1.090 |
| 270.0 | 4.1 | 266.2 | 15.730 | 49.270 | 2.860 | 4.480 | 9.270 | 0.490 |
| 285.0 | 3.8 | 279.0 | 16.630 | 56.330 | 2.150 | 4.500 | 9.270 | 0.380 |
| 300.0 | 3.3 | 290.2 | 16.530 | 50.430 | 3.650 | 4.450 | 9.080 | 0.850 |
| 315.0 | 3.0 | 300.5 | 16.230 | 52.630 | 4.330 | 4.420 | 9.130 | 1.310 |
| 330.0 | 2.7 | 311.4 | 17.260 | 55.970 | 5.870 | 4.370 | 9.150 | 1.730 |
| 345.0 | 2.6 | 323.6 | 16.650 | 55.680 | 7.190 | 4.290 | 9.030 | 2.100 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.66: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 7.4 | -24.1 | 14.660 | 54.340 | 7.670 | 4.170 | 9.090 | 2.400 |
| 15.0 | 7.4 | -12.0 | 14.290 | 49.490 | 8.220 | 4.110 | 8.710 | 2.540 |
| 30.0 | 7.6 | 2.2 | 15.230 | 45.370 | 7.760 | 4.070 | 8.030 | 2.590 |
| 45.0 | 7.9 | 19.7 | 14.150 | 39.930 | 7.920 | 4.050 | 6.670 | 2.460 |
| 60.0 | 8.3 | 39.5 | 14.690 | 35.600 | 6.710 | 4.080 | 4.980 | 2.080 |
| 75.0 | 8.6 | 61.1 | 14.010 | 34.510 | 5.340 | 4.080 | 4.020 | 1.360 |
| 90.0 | 8.9 | 82.5 | 15.020 | 38.720 | 1.900 | 4.130 | 5.610 | 0.480 |
| 105.0 | 8.6 | 94.8 | 17.720 | 42.670 | 1.620 | 4.120 | 5.290 | 0.270 |
| 120.0 | 8.3 | 105.8 | 13.530 | 48.820 | 3.250 | 4.130 | 4.630 | 0.690 |
| 135.0 | 8.1 | 114.5 | 14.240 | 43.970 | 3.960 | 4.100 | 3.700 | 0.980 |
| 150.0 | 8.0 | 127.8 | 13.780 | 41.810 | 6.420 | 4.100 | 3.110 | 1.440 |
| 165.0 | 7.8 | 141.5 | 13.520 | 36.820 | 8.240 | 4.020 | 2.260 | 1.820 |
| 180.0 | 7.7 | 155.3 | 13.350 | 33.670 | 9.410 | 3.990 | 1.470 | 2.100 |
| 195.0 | 7.7 | 171.9 | 13.350 | 31.490 | 10.230 | 4.000 | 1.970 | 2.320 |
| 210.0 | 8.7 | 201.6 | 13.810 | 44.150 | 9.380 | 4.090 | 5.570 | 2.280 |
| 225.0 | 9.3 | 223.0 | 14.210 | 47.610 | 7.870 | 4.230 | 8.110 | 1.890 |
| 240.0 | 9.6 | 239.4 | 14.320 | 46.910 | 5.430 | 4.300 | 9.250 | 1.430 |
| 255.0 | 9.7 | 254.2 | 16.570 | 52.370 | 5.070 | 4.360 | 10.390 | 0.910 |
| 270.0 | 9.5 | 268.7 | 14.600 | 53.760 | 2.090 | 4.420 | 10.450 | 0.370 |
| 285.0 | 9.3 | 282.5 | 16.830 | 53.810 | 3.330 | 4.420 | 10.160 | 0.540 |
| 300.0 | 8.9 | 295.7 | 15.140 | 53.590 | 4.250 | 4.410 | 9.170 | 1.110 |
| 315.0 | 8.2 | 306.6 | 15.120 | 52.960 | 4.910 | 4.350 | 9.010 | 1.560 |
| 330.0 | 7.7 | 315.2 | 14.960 | 52.090 | 5.800 | 4.300 | 9.150 | 1.870 |
| 345.0 | 7.6 | 325.2 | 15.980 | 52.910 | 6.720 | 4.240 | 9.190 | 2.170 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.67: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 13.3 | -6.3 | 13.300 | 47.790 | 8.340 | 4.060 | 6.900 | 2.620 |
| 15.0 | 13.2 | 7.7 | 14.160 | 44.450 | 8.780 | 4.010 | 6.300 | 2.610 |
| 30.0 | 13.3 | 22.6 | 12.670 | 40.880 | 8.070 | 4.020 | 5.500 | 2.480 |
| 45.0 | 13.7 | 38.6 | 14.500 | 37.000 | 7.290 | 4.010 | 4.250 | 2.160 |
| 60.0 | 13.8 | 53.8 | 14.950 | 37.430 | 5.980 | 4.040 | 3.760 | 1.700 |
| 75.0 | 14.3 | 71.1 | 14.870 | 41.480 | 3.560 | 4.070 | 5.930 | 1.030 |
| 90.0 | 14.2 | 85.8 | 12.980 | 49.060 | 1.610 | 4.090 | 6.620 | 0.430 |
| 105.0 | 14.0 | 99.9 | 13.530 | 54.710 | 1.960 | 4.060 | 6.220 | 0.410 |
| 120.0 | 13.4 | 112.4 | 14.060 | 52.210 | 3.420 | 4.070 | 4.810 | 0.810 |
| 135.0 | 13.5 | 127.9 | 14.190 | 48.350 | 5.890 | 4.010 | 4.460 | 1.290 |
| 150.0 | 13.6 | 143.3 | 13.900 | 53.400 | 6.640 | 3.910 | 4.080 | 1.640 |
| 165.0 | 13.7 | 159.4 | 13.640 | 47.120 | 6.960 | 3.960 | 4.240 | 1.960 |
| 180.0 | 14.0 | 176.0 | 12.900 | 40.830 | 7.100 | 3.980 | 5.080 | 2.110 |
| 195.0 | 14.1 | 192.4 | 13.410 | 48.860 | 7.870 | 4.010 | 6.820 | 2.120 |
| 210.0 | 14.2 | 208.8 | 12.960 | 47.640 | 7.030 | 4.000 | 8.040 | 1.910 |
| 225.0 | 14.3 | 224.6 | 14.380 | 49.690 | 6.700 | 4.130 | 9.420 | 1.660 |
| 240.0 | 14.6 | 239.7 | 14.810 | 54.670 | 5.580 | 4.250 | 10.450 | 1.290 |
| 255.0 | 14.7 | 254.8 | 17.150 | 63.240 | 4.650 | 4.300 | 11.810 | 0.820 |
| 270.0 | 14.7 | 269.6 | 14.450 | 57.840 | 1.710 | 4.360 | 12.230 | 0.370 |
| 285.0 | 14.6 | 284.1 | 15.030 | 63.310 | 3.280 | 4.330 | 11.900 | 0.670 |
| 300.0 | 14.5 | 298.4 | 14.640 | 58.660 | 4.610 | 4.300 | 9.910 | 1.260 |
| 315.0 | 14.3 | 312.5 | 14.240 | 57.290 | 5.390 | 4.250 | 8.950 | 1.800 |
| 330.0 | 14.0 | 326.4 | 13.950 | 54.700 | 7.100 | 4.180 | 8.030 | 2.210 |
| 345.0 | 13.7 | 340.2 | 13.850 | 50.010 | 7.890 | 4.110 | 7.390 | 2.490 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.68: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 19.4 | -2.5 | 16.630 | 53.710 | 8.990 | 4.040 | 5.660 | 2.600 |
| 15.0 | 19.4 | 12.4 | 15.220 | 45.650 | 8.300 | 3.970 | 4.970 | 2.570 |
| 30.0 | 19.4 | 27.2 | 16.340 | 44.050 | 9.310 | 3.980 | 4.360 | 2.410 |
| 45.0 | 19.4 | 42.1 | 14.300 | 41.420 | 6.810 | 3.970 | 4.050 | 2.100 |
| 60.0 | 19.4 | 56.7 | 14.720 | 42.800 | 6.640 | 4.000 | 4.190 | 1.660 |
| 75.0 | 19.7 | 72.5 | 13.840 | 54.060 | 3.400 | 3.980 | 7.560 | 1.060 |
| 90.0 | 19.6 | 87.1 | 13.100 | 55.280 | 2.260 | 4.030 | 7.830 | 0.510 |
| 105.0 | 19.5 | 101.8 | 13.920 | 66.960 | 2.280 | 3.990 | 7.750 | 0.480 |
| 120.0 | 19.5 | 116.7 | 14.030 | 58.860 | 3.980 | 3.980 | 6.220 | 0.850 |
| 135.0 | 19.4 | 131.5 | 13.190 | 65.740 | 4.840 | 3.910 | 5.980 | 1.250 |
| 150.0 | 19.5 | 146.8 | 14.980 | 67.800 | 6.470 | 3.870 | 5.630 | 1.590 |
| 165.0 | 19.5 | 162.4 | 11.650 | 53.910 | 6.690 | 3.910 | 5.660 | 1.890 |
| 180.0 | 19.6 | 177.8 | 11.400 | 45.180 | 6.470 | 3.880 | 5.950 | 1.830 |
| 195.0 | 19.6 | 193.7 | 12.710 | 48.370 | 7.320 | 3.930 | 7.790 | 2.040 |
| 210.0 | 19.5 | 209.1 | 15.660 | 52.770 | 8.080 | 3.890 | 9.040 | 1.790 |
| 225.0 | 19.6 | 224.3 | 13.290 | 57.500 | 5.610 | 4.030 | 10.540 | 1.560 |
| 240.0 | 19.6 | 239.4 | 14.040 | 57.910 | 4.720 | 4.110 | 11.410 | 1.180 |
| 255.0 | 19.8 | 254.7 | 14.160 | 73.580 | 3.340 | 4.250 | 13.100 | 0.760 |
| 270.0 | 19.8 | 269.9 | 14.410 | 70.270 | 1.940 | 4.280 | 14.010 | 0.410 |
| 285.0 | 19.8 | 284.6 | 14.810 | 73.930 | 3.130 | 4.310 | 13.820 | 0.750 |
| 300.0 | 19.8 | 299.1 | 13.400 | 65.500 | 4.070 | 4.240 | 10.810 | 1.310 |
| 315.0 | 19.7 | 313.6 | 15.320 | 65.210 | 6.030 | 4.190 | 9.600 | 1.830 |
| 330.0 | 19.6 | 328.2 | 17.840 | 65.320 | 7.420 | 4.140 | 7.910 | 2.230 |
| 345.0 | 19.5 | 342.8 | 16.970 | 56.270 | 8.590 | 4.050 | 6.630 | 2.480 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.69: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 24.8 | -1.5 | 12.740 | 47.300 | 8.340 | 4.000 | 5.380 | 2.560 |
| 15.0 | 24.8 | 13.5 | 13.890 | 42.180 | 7.850 | 3.980 | 4.730 | 2.540 |
| 30.0 | 24.8 | 28.4 | 14.060 | 46.600 | 8.440 | 3.950 | 4.440 | 2.380 |
| 45.0 | 24.8 | 43.2 | 15.020 | 47.590 | 6.760 | 3.930 | 4.370 | 2.090 |
| 60.0 | 24.7 | 57.8 | 13.700 | 47.690 | 5.710 | 3.950 | 4.760 | 1.670 |
| 75.0 | 24.9 | 73.2 | 14.960 | 57.820 | 3.900 | 3.940 | 8.680 | 1.120 |
| 90.0 | 24.9 | 87.9 | 13.540 | 64.710 | 2.620 | 3.960 | 8.970 | 0.620 |
| 105.0 | 24.8 | 102.7 | 13.620 | 76.610 | 3.100 | 3.950 | 8.970 | 0.560 |
| 120.0 | 24.8 | 117.7 | 13.000 | 65.650 | 3.280 | 3.920 | 6.450 | 0.880 |
| 135.0 | 24.7 | 132.5 | 12.930 | 72.090 | 4.650 | 3.890 | 5.850 | 1.260 |
| 150.0 | 24.7 | 147.6 | 11.410 | 63.650 | 5.240 | 3.900 | 5.370 | 1.740 |
| 165.0 | 24.8 | 163.1 | 11.100 | 57.610 | 5.750 | 3.980 | 5.160 | 1.980 |
| 180.0 | 25.0 | 178.5 | 10.400 | 43.980 | 4.800 | 3.740 | 4.900 | 1.800 |
| 195.0 | 25.0 | 194.2 | 11.480 | 49.170 | 5.980 | 4.120 | 7.560 | 2.110 |
| 210.0 | 24.9 | 209.3 | 11.670 | 55.020 | 5.650 | 3.890 | 8.820 | 1.810 |
| 225.0 | 24.9 | 224.3 | 13.790 | 62.280 | 5.320 | 3.970 | 10.820 | 1.530 |
| 240.0 | 24.8 | 239.4 | 13.710 | 61.490 | 5.000 | 4.010 | 11.710 | 1.150 |
| 255.0 | 24.8 | 254.7 | 14.080 | 81.500 | 2.780 | 4.210 | 14.370 | 0.760 |
| 270.0 | 24.8 | 269.8 | 14.630 | 90.350 | 2.320 | 4.230 | 15.720 | 0.480 |
| 285.0 | 24.9 | 284.5 | 13.190 | 89.960 | 3.000 | 4.210 | 15.320 | 0.780 |
| 300.0 | 25.0 | 299.4 | 14.890 | 65.890 | 4.380 | 4.180 | 10.980 | 1.350 |
| 315.0 | 24.9 | 314.1 | 17.450 | 83.850 | 5.960 | 4.140 | 9.790 | 1.840 |
| 330.0 | 24.9 | 328.9 | 14.540 | 64.600 | 7.790 | 4.090 | 8.200 | 2.220 |
| 345.0 | 24.8 | 343.7 | 13.030 | 54.110 | 7.720 | 4.050 | 6.390 | 2.460 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table Q.70: Course-Keeping Ability and Motion Parameters: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.0 | -0.9 | 13.820 | 47.580 | 8.370 | 4.010 | 5.180 | 2.500 |
| 15.0 | 30.0 | 14.1 | 14.740 | 43.780 | 8.800 | 3.980 | 4.600 | 2.470 |
| 30.0 | 30.0 | 28.9 | 12.510 | 44.180 | 7.960 | 3.940 | 4.410 | 2.340 |
| 45.0 | 30.0 | 43.8 | 14.950 | 51.210 | 7.320 | 3.910 | 4.300 | 2.080 |
| 60.0 | 30.0 | 58.5 | 14.160 | 52.640 | 6.740 | 3.890 | 4.790 | 1.690 |
| 75.0 | 30.1 | 73.7 | 13.570 | 56.710 | 3.830 | 3.870 | 9.790 | 1.180 |
| 90.0 | 30.0 | 88.4 | 13.230 | 68.080 | 3.210 | 3.900 | 10.120 | 0.710 |
| 105.0 | 30.0 | 103.2 | 12.700 | 77.390 | 3.910 | 3.830 | 9.800 | 0.630 |
| 120.0 | 29.9 | 118.4 | 14.240 | 56.580 | 3.720 | 3.900 | 7.130 | 0.950 |
| 135.0 | 29.8 | 133.1 | 10.980 | 59.560 | 4.400 | 3.910 | 5.860 | 1.350 |
| 150.0 | 29.9 | 148.2 | 10.200 | 50.910 | 4.720 | 3.870 | 4.400 | 1.700 |
| 165.0 | 30.1 | 163.4 | 10.470 | 55.090 | 6.120 | 3.600 | 3.940 | 1.750 |
| 180.0 | 30.4 | 178.7 | 10.830 | 46.990 | 5.940 | 3.880 | 4.660 | 2.020 |
| 195.0 | 30.4 | 194.1 | 11.700 | 52.460 | 5.630 | 3.620 | 5.270 | 1.830 |
| 210.0 | 30.2 | 209.5 | 12.950 | 63.370 | 6.210 | 3.830 | 8.900 | 1.850 |
| 225.0 | 30.1 | 224.6 | 12.600 | 69.940 | 5.430 | 4.020 | 11.590 | 1.630 |
| 240.0 | 30.1 | 239.6 | 13.550 | 64.420 | 3.840 | 4.000 | 12.000 | 1.160 |
| 255.0 | 29.9 | 254.7 | 14.210 | 90.220 | 3.110 | 4.160 | 15.510 | 0.800 |
| 270.0 | 29.9 | 269.6 | 14.870 | 79.500 | 2.760 | 4.200 | 17.030 | 0.560 |
| 285.0 | 29.9 | 284.6 | 13.070 | 90.240 | 3.180 | 4.250 | 16.940 | 0.830 |
| 300.0 | 30.1 | 299.5 | 16.830 | 75.640 | 5.590 | 4.160 | 11.010 | 1.370 |
| 315.0 | 30.1 | 314.4 | 14.280 | 73.560 | 5.970 | 4.110 | 9.420 | 1.820 |
| 330.0 | 30.1 | 329.3 | 12.170 | 65.330 | 7.440 | 4.100 | 7.600 | 2.190 |
| 345.0 | 30.0 | 344.2 | 15.430 | 51.100 | 8.070 | 4.060 | 6.190 | 2.400 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex R

Tables of Motion Maxima – JONSWAP Spectrum (Coastal Waters)

Table R.1: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.2 | -28.4 | 0.780 | 8.200 | 3.800 | 0.240 | 1.540 | 0.990 |
| 15.0 | -0.2 | -6.7 | 0.690 | 4.880 | 3.530 | 0.190 | 0.710 | 0.870 |
| 30.0 | -0.2 | 20.1 | 0.770 | 8.660 | 3.480 | 0.210 | 1.270 | 0.910 |
| 45.0 | -0.2 | 35.0 | 1.080 | 9.990 | 3.380 | 0.280 | 2.010 | 1.020 |
| 60.0 | -0.4 | 43.8 | 1.500 | 11.950 | 3.930 | 0.350 | 2.490 | 1.080 |
| 75.0 | -0.6 | 50.6 | 1.850 | 12.850 | 3.670 | 0.440 | 2.740 | 1.110 |
| 90.0 | -0.7 | 56.8 | 2.330 | 15.520 | 3.890 | 0.520 | 3.260 | 1.100 |
| 105.0 | -0.8 | 60.5 | 2.280 | 15.930 | 3.870 | 0.570 | 3.330 | 1.080 |
| 120.0 | -0.9 | 65.1 | 3.030 | 21.260 | 3.690 | 0.630 | 3.530 | 0.980 |
| 135.0 | -2.1 | 102.4 | 3.020 | 20.640 | 3.150 | 0.760 | 3.370 | 0.800 |
| 150.0 | -2.2 | 104.5 | 2.340 | 16.220 | 3.250 | 0.730 | 3.200 | 0.860 |
| 165.0 | -2.4 | 103.6 | 2.750 | 14.320 | 3.570 | 0.770 | 3.080 | 0.750 |
| 180.0 | -0.8 | 59.1 | 2.240 | 10.270 | 3.400 | 0.390 | 2.620 | 0.870 |
| 195.0 | -0.2 | 352.3 | 2.130 | 9.700 | 3.960 | 0.340 | 2.720 | 1.020 |
| 210.0 | -0.2 | 382.7 | 2.800 | 11.630 | 3.620 | 0.440 | 2.640 | 1.080 |
| 225.0 | 0.0 | 379.0 | 2.140 | 12.040 | 3.720 | 0.440 | 2.880 | 1.130 |
| 240.0 | 0.7 | 294.4 | 2.450 | 12.960 | 3.350 | 0.660 | 3.050 | 1.090 |
| 255.0 | 0.5 | 293.5 | 2.470 | 11.910 | 3.360 | 0.680 | 3.090 | 1.080 |
| 270.0 | 0.3 | 296.5 | 2.380 | 16.960 | 3.350 | 0.630 | 3.310 | 1.120 |
| 285.0 | 0.1 | 300.8 | 2.090 | 12.440 | 3.560 | 0.560 | 3.070 | 1.160 |
| 300.0 | 0.0 | 305.3 | 1.940 | 15.620 | 3.930 | 0.490 | 2.930 | 1.170 |
| 315.0 | -0.0 | 309.8 | 1.700 | 11.830 | 4.250 | 0.430 | 2.680 | 1.160 |
| 330.0 | -0.1 | 315.0 | 1.640 | 10.340 | 4.000 | 0.370 | 2.310 | 1.130 |
| 345.0 | -0.1 | 321.5 | 1.130 | 9.640 | 3.840 | 0.300 | 1.960 | 1.080 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.2: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.8 | -2.1 | 0.820 | 5.190 | 2.820 | 0.230 | 0.760 | 0.870 |
| 15.0 | 4.8 | 12.8 | 0.810 | 5.530 | 2.950 | 0.230 | 0.920 | 0.890 |
| 30.0 | 4.7 | 27.8 | 0.940 | 6.350 | 3.540 | 0.270 | 1.160 | 0.980 |
| 45.0 | 4.7 | 42.2 | 1.210 | 9.730 | 3.540 | 0.360 | 1.670 | 1.100 |
| 60.0 | 4.4 | 53.9 | 1.740 | 12.790 | 3.870 | 0.480 | 2.170 | 1.160 |
| 75.0 | 4.1 | 56.6 | 1.830 | 14.310 | 3.550 | 0.520 | 2.450 | 1.150 |
| 90.0 | 4.1 | 60.8 | 2.220 | 15.080 | 3.790 | 0.580 | 2.720 | 1.130 |
| 105.0 | 4.1 | 63.1 | 2.210 | 13.020 | 3.380 | 0.610 | 2.750 | 1.110 |
| 120.0 | 4.1 | 64.0 | 2.170 | 11.500 | 3.330 | 0.610 | 2.740 | 1.110 |
| 135.0 | 4.0 | 64.2 | 2.510 | 11.620 | 3.460 | 0.600 | 2.770 | 1.120 |
| 150.0 | 4.1 | 74.6 | 2.060 | 11.330 | 3.660 | 0.540 | 2.700 | 1.090 |
| 165.0 | 4.9 | 163.1 | 0.710 | 7.700 | 2.350 | 0.190 | 1.380 | 0.620 |
| 180.0 | 4.9 | 178.7 | 0.650 | 5.470 | 2.020 | 0.170 | 0.940 | 0.580 |
| 195.0 | 4.9 | 194.1 | 0.770 | 5.930 | 1.940 | 0.190 | 1.200 | 0.610 |
| 210.0 | 4.8 | 210.3 | 0.880 | 8.730 | 2.370 | 0.250 | 1.790 | 0.720 |
| 225.0 | 4.5 | 283.4 | 2.860 | 10.650 | 3.070 | 0.750 | 2.590 | 0.970 |
| 240.0 | 4.6 | 285.3 | 2.660 | 9.640 | 2.840 | 0.800 | 2.580 | 0.930 |
| 255.0 | 4.5 | 286.8 | 2.870 | 11.060 | 2.980 | 0.800 | 2.530 | 0.960 |
| 270.0 | 4.5 | 288.9 | 2.840 | 10.340 | 3.020 | 0.770 | 2.520 | 1.010 |
| 285.0 | 4.7 | 291.3 | 2.610 | 10.460 | 3.360 | 0.730 | 2.560 | 1.090 |
| 300.0 | 4.9 | 301.2 | 2.230 | 10.360 | 4.150 | 0.560 | 2.430 | 1.200 |
| 315.0 | 4.8 | 314.0 | 1.410 | 8.720 | 3.850 | 0.400 | 1.860 | 1.160 |
| 330.0 | 4.8 | 328.1 | 0.940 | 8.040 | 3.400 | 0.290 | 1.340 | 1.030 |
| 345.0 | 4.8 | 343.0 | 0.850 | 5.560 | 2.970 | 0.240 | 0.800 | 0.920 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.3: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 10.0 | -0.6 | 0.850 | 5.220 | 2.880 | 0.290 | 0.540 | 0.860 |
| 15.0 | 10.0 | 14.4 | 1.060 | 5.230 | 2.810 | 0.310 | 0.560 | 0.900 |
| 30.0 | 10.0 | 29.4 | 1.090 | 6.230 | 3.120 | 0.360 | 0.860 | 0.990 |
| 45.0 | 9.9 | 44.5 | 1.500 | 9.430 | 3.520 | 0.460 | 1.320 | 1.110 |
| 60.0 | 10.0 | 59.1 | 1.980 | 14.100 | 3.520 | 0.610 | 1.900 | 1.160 |
| 75.0 | 10.0 | 73.0 | 2.790 | 15.200 | 3.180 | 0.790 | 1.960 | 0.980 |
| 90.0 | 9.7 | 86.0 | 2.790 | 17.710 | 1.320 | 0.880 | 2.540 | 0.360 |
| 105.0 | 9.4 | 100.8 | 2.460 | 17.910 | 2.410 | 0.740 | 3.100 | 0.600 |
| 120.0 | 9.6 | 116.9 | 1.910 | 15.590 | 2.610 | 0.520 | 3.320 | 0.780 |
| 135.0 | 9.9 | 133.2 | 0.870 | 14.810 | 1.940 | 0.330 | 4.600 | 0.710 |
| 150.0 | 10.0 | 148.8 | 0.670 | 17.580 | 1.640 | 0.230 | 5.430 | 0.590 |
| 165.0 | 10.1 | 164.1 | 0.530 | 19.880 | 1.520 | 0.180 | 4.610 | 0.510 |
| 180.0 | 10.1 | 179.2 | 0.540 | 13.060 | 1.520 | 0.160 | 2.890 | 0.480 |
| 195.0 | 10.1 | 194.7 | 0.570 | 9.660 | 1.620 | 0.180 | 2.630 | 0.520 |
| 210.0 | 10.1 | 210.3 | 0.680 | 12.150 | 1.680 | 0.240 | 4.100 | 0.600 |
| 225.0 | 10.0 | 225.9 | 1.090 | 13.420 | 2.220 | 0.350 | 3.990 | 0.750 |
| 240.0 | 9.7 | 242.3 | 1.960 | 11.230 | 2.780 | 0.550 | 3.270 | 0.840 |
| 255.0 | 9.5 | 259.2 | 2.720 | 14.300 | 2.460 | 0.800 | 3.160 | 0.650 |
| 270.0 | 9.8 | 273.7 | 2.970 | 13.570 | 1.820 | 0.930 | 2.570 | 0.330 |
| 285.0 | 10.2 | 286.6 | 2.930 | 9.210 | 3.300 | 0.830 | 1.980 | 0.980 |
| 300.0 | 10.1 | 300.1 | 2.230 | 9.920 | 3.780 | 0.650 | 2.030 | 1.180 |
| 315.0 | 10.0 | 314.7 | 1.560 | 8.010 | 3.510 | 0.480 | 1.370 | 1.130 |
| 330.0 | 10.0 | 329.6 | 1.160 | 6.460 | 3.200 | 0.370 | 0.910 | 1.010 |
| 345.0 | 10.0 | 344.6 | 1.120 | 5.710 | 2.860 | 0.310 | 0.600 | 0.910 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.4: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.2 | -0.2 | 1.240 | 5.560 | 2.540 | 0.370 | 0.470 | 0.850 |
| 15.0 | 15.2 | 14.8 | 1.260 | 5.610 | 2.650 | 0.390 | 0.510 | 0.880 |
| 30.0 | 15.1 | 29.8 | 1.440 | 6.790 | 3.000 | 0.450 | 0.760 | 0.970 |
| 45.0 | 15.1 | 44.8 | 1.740 | 9.360 | 3.300 | 0.560 | 1.130 | 1.090 |
| 60.0 | 15.2 | 59.7 | 2.250 | 12.440 | 3.510 | 0.700 | 1.660 | 1.120 |
| 75.0 | 15.2 | 74.1 | 2.980 | 12.560 | 3.040 | 0.840 | 1.750 | 0.930 |
| 90.0 | 15.1 | 88.5 | 2.770 | 17.820 | 0.940 | 0.860 | 2.630 | 0.200 |
| 105.0 | 15.0 | 103.3 | 2.980 | 21.890 | 2.220 | 0.670 | 3.300 | 0.570 |
| 120.0 | 15.0 | 118.5 | 1.460 | 20.860 | 2.230 | 0.460 | 6.370 | 0.670 |
| 135.0 | 15.2 | 134.3 | 1.070 | 22.960 | 1.970 | 0.300 | 7.380 | 0.550 |
| 150.0 | 15.3 | 149.7 | 0.610 | 16.830 | 1.410 | 0.210 | 4.530 | 0.440 |
| 165.0 | 15.3 | 164.7 | 0.460 | 11.490 | 1.430 | 0.160 | 2.320 | 0.420 |
| 180.0 | 15.2 | 179.5 | 0.570 | 13.490 | 1.410 | 0.190 | 1.940 | 0.450 |
| 195.0 | 15.2 | 194.7 | 0.410 | 12.270 | 1.100 | 0.150 | 2.280 | 0.400 |
| 210.0 | 15.2 | 209.8 | 0.500 | 13.440 | 1.140 | 0.160 | 3.200 | 0.340 |
| 225.0 | 15.2 | 225.4 | 1.050 | 19.910 | 2.220 | 0.320 | 7.210 | 0.610 |
| 240.0 | 15.1 | 241.1 | 1.380 | 19.650 | 2.360 | 0.510 | 6.170 | 0.750 |
| 255.0 | 15.0 | 256.7 | 2.630 | 14.200 | 2.030 | 0.730 | 3.590 | 0.640 |
| 270.0 | 15.1 | 271.5 | 2.870 | 14.730 | 1.100 | 0.920 | 2.980 | 0.200 |
| 285.0 | 15.3 | 285.8 | 2.750 | 9.370 | 3.180 | 0.880 | 2.050 | 0.930 |
| 300.0 | 15.2 | 300.1 | 2.400 | 7.730 | 3.690 | 0.730 | 1.710 | 1.140 |
| 315.0 | 15.1 | 314.8 | 1.750 | 7.320 | 3.480 | 0.580 | 1.290 | 1.100 |
| 330.0 | 15.1 | 329.8 | 1.430 | 6.020 | 2.940 | 0.460 | 0.810 | 0.980 |
| 345.0 | 15.2 | 344.8 | 1.320 | 5.070 | 2.620 | 0.390 | 0.510 | 0.880 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.5: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.3 | -0.1 | 1.380 | 6.030 | 2.700 | 0.440 | 0.440 | 0.810 |
| 15.0 | 20.3 | 14.9 | 1.440 | 6.230 | 2.530 | 0.460 | 0.500 | 0.840 |
| 30.0 | 20.3 | 29.9 | 1.650 | 7.550 | 2.990 | 0.540 | 0.710 | 0.930 |
| 45.0 | 20.3 | 44.9 | 1.940 | 10.420 | 3.370 | 0.650 | 1.080 | 1.050 |
| 60.0 | 20.3 | 59.8 | 2.720 | 12.230 | 3.500 | 0.790 | 1.550 | 1.090 |
| 75.0 | 20.4 | 74.5 | 2.980 | 14.520 | 3.080 | 0.880 | 1.830 | 0.890 |
| 90.0 | 20.3 | 89.1 | 2.560 | 18.160 | 0.870 | 0.840 | 2.680 | 0.170 |
| 105.0 | 20.2 | 104.1 | 2.610 | 22.070 | 2.170 | 0.630 | 4.030 | 0.520 |
| 120.0 | 20.3 | 119.3 | 1.640 | 28.010 | 2.510 | 0.420 | 9.190 | 0.530 |
| 135.0 | 20.2 | 134.8 | 1.020 | 24.620 | 1.730 | 0.350 | 8.080 | 0.610 |
| 150.0 | 20.4 | 149.8 | 0.720 | 16.210 | 1.760 | 0.210 | 4.000 | 0.460 |
| 165.0 | 20.3 | 164.6 | 0.490 | 15.920 | 1.690 | 0.170 | 2.170 | 0.420 |
| 180.0 | 20.6 | 179.8 | 0.450 | 19.090 | 1.210 | 0.160 | 1.890 | 0.400 |
| 195.0 | 20.4 | 194.7 | 0.500 | 21.770 | 1.700 | 0.170 | 3.360 | 0.410 |
| 210.0 | 20.3 | 209.8 | 0.620 | 24.630 | 1.440 | 0.200 | 5.030 | 0.460 |
| 225.0 | 20.3 | 225.1 | 0.810 | 25.830 | 1.760 | 0.240 | 7.620 | 0.480 |
| 240.0 | 20.3 | 240.6 | 1.810 | 25.480 | 2.800 | 0.470 | 9.700 | 0.620 |
| 255.0 | 20.2 | 255.9 | 2.340 | 16.210 | 2.010 | 0.690 | 4.380 | 0.590 |
| 270.0 | 20.3 | 270.9 | 2.860 | 15.000 | 0.830 | 0.890 | 3.380 | 0.180 |
| 285.0 | 20.4 | 285.5 | 3.270 | 12.850 | 3.460 | 0.920 | 2.470 | 0.890 |
| 300.0 | 20.3 | 300.1 | 2.590 | 8.010 | 3.460 | 0.810 | 1.880 | 1.090 |
| 315.0 | 20.3 | 315.0 | 2.100 | 6.950 | 3.400 | 0.670 | 1.290 | 1.050 |
| 330.0 | 20.3 | 329.9 | 1.690 | 6.060 | 2.940 | 0.540 | 0.780 | 0.940 |
| 345.0 | 20.3 | 344.9 | 1.450 | 5.270 | 2.620 | 0.460 | 0.510 | 0.840 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.6: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 1.570 | 6.370 | 2.590 | 0.480 | 0.490 | 0.760 |
| 15.0 | 25.4 | 14.9 | 1.640 | 6.660 | 2.650 | 0.510 | 0.480 | 0.790 |
| 30.0 | 25.4 | 29.9 | 1.800 | 8.770 | 2.700 | 0.590 | 0.740 | 0.880 |
| 45.0 | 25.4 | 44.9 | 2.300 | 10.300 | 3.180 | 0.720 | 1.160 | 1.000 |
| 60.0 | 25.4 | 59.8 | 2.850 | 12.940 | 3.310 | 0.850 | 1.680 | 1.050 |
| 75.0 | 25.4 | 74.6 | 3.300 | 15.550 | 2.950 | 0.920 | 2.050 | 0.850 |
| 90.0 | 25.4 | 89.4 | 2.700 | 19.160 | 0.940 | 0.820 | 2.800 | 0.180 |
| 105.0 | 25.4 | 104.4 | 2.090 | 24.150 | 1.870 | 0.590 | 5.020 | 0.470 |
| 120.0 | 25.3 | 119.7 | 1.740 | 34.110 | 2.630 | 0.460 | 12.780 | 0.620 |
| 135.0 | 25.3 | 134.9 | 1.050 | 23.990 | 1.680 | 0.270 | 7.250 | 0.490 |
| 150.0 | 25.5 | 149.8 | 0.690 | 15.220 | 1.770 | 0.200 | 3.160 | 0.420 |
| 165.0 | 25.5 | 164.8 | 0.550 | 13.780 | 1.310 | 0.160 | 1.970 | 0.370 |
| 180.0 | 25.4 | 179.8 | 0.490 | 20.140 | 1.410 | 0.150 | 2.830 | 0.360 |
| 195.0 | 25.5 | 194.9 | 0.570 | 20.710 | 1.920 | 0.160 | 3.200 | 0.370 |
| 210.0 | 25.4 | 210.0 | 0.570 | 22.260 | 1.580 | 0.190 | 4.550 | 0.410 |
| 225.0 | 25.3 | 225.0 | 0.950 | 30.460 | 1.780 | 0.270 | 7.790 | 0.500 |
| 240.0 | 25.3 | 240.2 | 1.670 | 35.230 | 2.250 | 0.440 | 12.450 | 0.620 |
| 255.0 | 25.4 | 255.5 | 1.960 | 19.610 | 1.840 | 0.660 | 5.390 | 0.540 |
| 270.0 | 25.4 | 270.6 | 2.740 | 15.590 | 0.780 | 0.860 | 3.620 | 0.190 |
| 285.0 | 25.4 | 285.3 | 3.310 | 12.960 | 3.090 | 0.950 | 2.910 | 0.850 |
| 300.0 | 25.4 | 300.1 | 2.850 | 10.030 | 3.570 | 0.870 | 2.310 | 1.040 |
| 315.0 | 25.4 | 315.1 | 2.200 | 7.270 | 3.340 | 0.730 | 1.540 | 0.990 |
| 330.0 | 25.4 | 330.0 | 1.900 | 6.390 | 2.900 | 0.590 | 0.950 | 0.880 |
| 345.0 | 25.4 | 345.0 | 1.650 | 5.860 | 2.650 | 0.510 | 0.570 | 0.790 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.7: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum
with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|-------------|--------------|-------------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.1 | 1.550 | 6.670 | 2.360 | 0.490 | 0.520 | 0.690 |
| 15.0 | 30.5 | 14.9 | 1.540 | 7.270 | 2.320 | 0.520 | 0.500 | 0.730 |
| 30.0 | 30.5 | 29.9 | 1.990 | 9.330 | 2.660 | 0.610 | 0.770 | 0.820 |
| 45.0 | 30.5 | 44.9 | 2.250 | 12.440 | 2.970 | 0.750 | 1.330 | 0.940 |
| 60.0 | 30.5 | 59.9 | 2.750 | 14.740 | 3.280 | 0.900 | 1.910 | 1.000 |
| 75.0 | 30.5 | 74.7 | 3.120 | 15.020 | 2.890 | 0.950 | 2.170 | 0.830 |
| 90.0 | 30.5 | 89.6 | 2.830 | 20.130 | 0.930 | 0.790 | 2.960 | 0.180 |
| 105.0 | 30.5 | 104.6 | 2.020 | 23.950 | 1.990 | 0.560 | 6.170 | 0.420 |
| 120.0 | 30.4 | 119.9 | 1.400 | 32.110 | 2.170 | 0.420 | 12.210 | 0.590 |
| 135.0 | 30.4 | 134.9 | 0.910 | 20.930 | 1.660 | 0.280 | 6.410 | 0.490 |
| 150.0 | 30.6 | 149.8 | 0.700 | 18.990 | 1.340 | 0.190 | 3.460 | 0.360 |
| 165.0 | 30.4 | 165.0 | 0.550 | 13.880 | 1.510 | 0.160 | 2.410 | 0.320 |
| 180.0 | 30.7 | 179.9 | 0.520 | 18.120 | 1.440 | 0.140 | 3.010 | 0.260 |
| 195.0 | 30.4 | 194.8 | 0.580 | 23.000 | 1.560 | 0.160 | 4.140 | 0.330 |
| 210.0 | 30.6 | 210.0 | 0.600 | 25.490 | 1.470 | 0.180 | 5.300 | 0.370 |
| 225.0 | 30.4 | 225.0 | 0.900 | 24.050 | 1.680 | 0.270 | 7.100 | 0.480 |
| 240.0 | 30.4 | 240.0 | 1.490 | 37.260 | 2.460 | 0.400 | 12.430 | 0.600 |
| 255.0 | 30.5 | 255.3 | 2.570 | 36.820 | 3.010 | 0.630 | 6.960 | 0.520 |
| 270.0 | 30.5 | 270.4 | 2.750 | 14.360 | 0.730 | 0.830 | 3.910 | 0.210 |
| 285.0 | 30.5 | 285.3 | 2.960 | 13.940 | 2.600 | 0.970 | 3.190 | 0.820 |
| 300.0 | 30.5 | 300.1 | 2.980 | 10.990 | 3.180 | 0.910 | 2.780 | 0.990 |
| 315.0 | 30.5 | 315.1 | 2.310 | 9.170 | 3.070 | 0.760 | 1.940 | 0.930 |
| 330.0 | 30.5 | 330.1 | 1.940 | 7.360 | 2.510 | 0.610 | 1.120 | 0.810 |
| 345.0 | 30.5 | 345.0 | 1.640 | 6.560 | 2.340 | 0.520 | 0.670 | 0.730 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.8: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|------------------|-------------------------|----------|-----------|---------------------------|----------|-----------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 0.0 | -14.0 | 2.360 | 8.710 | 3.650 | 0.690 | 2.180 | 1.110 |
| 15.0 | -0.1 | -6.1 | 2.190 | 6.000 | 3.860 | 0.680 | 1.450 | 1.120 |
| 30.0 | -0.3 | 2.2 | 2.060 | 8.990 | 3.980 | 0.670 | 1.740 | 1.120 |
| 45.0 | -0.3 | 16.8 | 2.200 | 11.720 | 3.810 | 0.680 | 2.980 | 1.100 |
| 60.0 | -0.2 | 36.1 | 2.560 | 15.300 | 3.780 | 0.740 | 4.210 | 1.020 |
| 75.0 | -0.1 | 52.3 | 3.180 | 17.340 | 3.020 | 0.800 | 4.800 | 0.890 |
| 90.0 | -0.0 | 65.2 | 3.120 | 17.460 | 2.680 | 0.870 | 4.910 | 0.710 |
| 105.0 | -0.1 | 82.6 | 3.430 | 15.280 | 1.430 | 0.930 | 4.960 | 0.290 |
| 120.0 | -0.3 | 97.2 | 3.530 | 16.920 | 2.150 | 0.930 | 5.160 | 0.290 |
| 135.0 | -0.6 | 105.0 | 3.210 | 17.950 | 2.420 | 0.910 | 5.230 | 0.500 |
| 150.0 | -0.9 | 109.1 | 3.030 | 17.390 | 2.770 | 0.890 | 5.210 | 0.610 |
| 165.0 | -0.5 | 40.2 | 2.830 | 15.700 | 3.410 | 0.760 | 3.560 | 0.970 |
| 180.0 | -0.3 | 35.7 | 2.560 | 13.700 | 3.830 | 0.700 | 2.870 | 1.080 |
| 195.0 | 0.1 | 362.1 | 2.810 | 12.440 | 3.630 | 0.730 | 3.360 | 1.060 |
| 210.0 | 0.2 | 354.0 | 2.940 | 14.680 | 3.550 | 0.810 | 4.140 | 0.950 |
| 225.0 | 0.3 | 264.4 | 3.370 | 15.360 | 2.320 | 0.990 | 4.880 | 0.360 |
| 240.0 | 0.3 | 272.2 | 3.270 | 15.440 | 2.250 | 1.000 | 4.800 | 0.260 |
| 255.0 | 0.3 | 283.8 | 3.360 | 15.030 | 2.110 | 0.980 | 4.660 | 0.470 |
| 270.0 | 0.3 | 294.1 | 3.490 | 13.730 | 2.620 | 0.930 | 4.600 | 0.700 |
| 285.0 | 0.2 | 302.8 | 3.250 | 14.080 | 3.070 | 0.890 | 4.540 | 0.850 |
| 300.0 | 0.1 | 311.1 | 2.960 | 13.750 | 3.320 | 0.840 | 4.390 | 0.950 |
| 315.0 | 0.1 | 319.6 | 2.660 | 13.820 | 3.670 | 0.790 | 4.130 | 1.020 |
| 330.0 | 0.1 | 328.7 | 2.630 | 12.640 | 3.380 | 0.750 | 3.640 | 1.070 |
| 345.0 | 0.0 | 337.9 | 2.520 | 10.870 | 3.740 | 0.720 | 2.940 | 1.100 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.9: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum
with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|---------------------|----------------------|-------------------------------|---------------------|----------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.8 | -2.5 | 2.490 | 5.790 | 4.310 | 0.680 | 0.980 | 1.140 |
| 15.0 | 4.8 | 11.8 | 2.500 | 8.300 | 3.870 | 0.690 | 1.700 | 1.130 |
| 30.0 | 4.7 | 26.3 | 2.700 | 12.110 | 3.970 | 0.710 | 2.770 | 1.100 |
| 45.0 | 4.7 | 41.0 | 2.730 | 14.460 | 3.580 | 0.770 | 3.580 | 1.030 |
| 60.0 | 4.7 | 55.3 | 3.050 | 15.240 | 3.350 | 0.830 | 4.030 | 0.890 |
| 75.0 | 4.7 | 69.9 | 3.000 | 15.790 | 2.240 | 0.900 | 4.270 | 0.630 |
| 90.0 | 4.6 | 83.5 | 3.420 | 15.080 | 0.880 | 0.940 | 4.500 | 0.230 |
| 105.0 | 4.4 | 95.7 | 3.650 | 17.180 | 1.220 | 0.930 | 4.700 | 0.220 |
| 120.0 | 4.3 | 104.0 | 3.480 | 16.600 | 2.340 | 0.900 | 4.720 | 0.450 |
| 135.0 | 4.2 | 112.8 | 3.140 | 16.500 | 2.690 | 0.860 | 4.650 | 0.620 |
| 150.0 | 4.2 | 128.2 | 2.560 | 15.670 | 2.960 | 0.790 | 4.150 | 0.810 |
| 165.0 | 4.6 | 161.0 | 2.230 | 8.100 | 3.070 | 0.670 | 1.820 | 0.940 |
| 180.0 | 4.8 | 178.1 | 2.160 | 6.990 | 3.020 | 0.650 | 1.450 | 0.950 |
| 195.0 | 4.9 | 194.6 | 2.260 | 8.610 | 3.140 | 0.670 | 2.310 | 0.950 |
| 210.0 | 4.9 | 211.3 | 2.400 | 10.400 | 3.220 | 0.720 | 3.270 | 0.930 |
| 225.0 | 4.7 | 228.6 | 2.840 | 12.310 | 3.470 | 0.810 | 4.000 | 0.860 |
| 240.0 | 4.7 | 245.3 | 3.310 | 13.030 | 2.450 | 0.900 | 4.400 | 0.680 |
| 255.0 | 4.8 | 258.9 | 3.040 | 13.450 | 1.640 | 0.970 | 4.510 | 0.390 |
| 270.0 | 4.9 | 272.8 | 3.560 | 13.520 | 0.830 | 1.000 | 4.290 | 0.120 |
| 285.0 | 5.0 | 287.0 | 3.610 | 12.900 | 1.960 | 0.960 | 3.940 | 0.560 |
| 300.0 | 5.0 | 301.0 | 3.060 | 13.010 | 2.840 | 0.890 | 3.700 | 0.860 |
| 315.0 | 5.0 | 314.8 | 3.100 | 11.280 | 3.550 | 0.810 | 3.200 | 1.020 |
| 330.0 | 4.9 | 329.0 | 2.750 | 10.860 | 3.670 | 0.740 | 2.590 | 1.090 |
| 345.0 | 4.9 | 343.3 | 2.590 | 8.560 | 4.280 | 0.700 | 1.770 | 1.130 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.10: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 10.0 | -0.6 | 2.650 | 4.800 | 4.390 | 0.720 | 0.470 | 1.150 |
| 15.0 | 10.0 | 14.4 | 2.730 | 7.210 | 4.280 | 0.720 | 1.170 | 1.130 |
| 30.0 | 10.0 | 29.4 | 2.890 | 9.440 | 4.050 | 0.750 | 1.960 | 1.090 |
| 45.0 | 10.1 | 44.4 | 2.670 | 10.670 | 3.560 | 0.800 | 2.550 | 1.010 |
| 60.0 | 10.1 | 59.3 | 3.280 | 12.640 | 2.930 | 0.870 | 3.020 | 0.850 |
| 75.0 | 10.1 | 74.0 | 3.490 | 13.540 | 2.090 | 0.920 | 3.250 | 0.540 |
| 90.0 | 10.1 | 88.8 | 3.340 | 14.120 | 0.360 | 0.930 | 3.720 | 0.090 |
| 105.0 | 10.1 | 103.7 | 3.280 | 16.480 | 1.430 | 0.880 | 4.070 | 0.370 |
| 120.0 | 10.0 | 118.3 | 2.810 | 16.520 | 2.400 | 0.820 | 4.260 | 0.620 |
| 135.0 | 10.0 | 133.5 | 2.550 | 15.850 | 2.400 | 0.740 | 4.150 | 0.750 |
| 150.0 | 10.0 | 148.8 | 2.170 | 15.420 | 2.510 | 0.690 | 3.930 | 0.820 |
| 165.0 | 10.0 | 164.0 | 2.350 | 15.470 | 3.270 | 0.650 | 3.120 | 0.850 |
| 180.0 | 10.1 | 179.3 | 1.700 | 12.420 | 2.640 | 0.650 | 2.020 | 0.860 |
| 195.0 | 10.1 | 194.6 | 2.260 | 9.970 | 2.990 | 0.660 | 2.290 | 0.870 |
| 210.0 | 10.1 | 210.2 | 2.330 | 11.630 | 2.730 | 0.700 | 3.660 | 0.840 |
| 225.0 | 10.0 | 225.8 | 2.560 | 12.850 | 2.740 | 0.770 | 4.500 | 0.790 |
| 240.0 | 10.0 | 241.2 | 2.900 | 13.100 | 2.640 | 0.860 | 4.690 | 0.670 |
| 255.0 | 10.1 | 255.9 | 3.660 | 14.300 | 1.500 | 0.930 | 4.470 | 0.420 |
| 270.0 | 10.2 | 270.7 | 3.260 | 13.070 | 0.370 | 0.980 | 4.030 | 0.090 |
| 285.0 | 10.2 | 285.3 | 3.420 | 12.910 | 1.690 | 0.960 | 3.470 | 0.520 |
| 300.0 | 10.1 | 299.9 | 3.200 | 11.740 | 3.220 | 0.900 | 3.020 | 0.840 |
| 315.0 | 10.1 | 314.6 | 2.940 | 9.840 | 3.380 | 0.820 | 2.370 | 1.010 |
| 330.0 | 10.1 | 329.5 | 2.940 | 8.500 | 4.280 | 0.770 | 1.640 | 1.100 |
| 345.0 | 10.1 | 344.4 | 2.850 | 6.450 | 4.400 | 0.730 | 0.950 | 1.130 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.11: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.2 | -0.3 | 2.570 | 5.300 | 3.710 | 0.770 | 0.410 | 1.130 |
| 15.0 | 15.2 | 14.8 | 2.450 | 6.820 | 3.600 | 0.780 | 1.000 | 1.120 |
| 30.0 | 15.2 | 29.9 | 2.760 | 8.760 | 3.710 | 0.800 | 1.670 | 1.080 |
| 45.0 | 15.2 | 44.9 | 3.290 | 10.400 | 3.500 | 0.840 | 2.220 | 1.000 |
| 60.0 | 15.2 | 59.8 | 3.240 | 11.640 | 2.810 | 0.890 | 2.720 | 0.840 |
| 75.0 | 15.3 | 74.6 | 3.230 | 12.560 | 1.580 | 0.920 | 2.770 | 0.530 |
| 90.0 | 15.3 | 89.5 | 3.430 | 14.140 | 0.420 | 0.900 | 3.320 | 0.120 |
| 105.0 | 15.3 | 104.4 | 3.050 | 17.050 | 1.300 | 0.860 | 3.940 | 0.360 |
| 120.0 | 15.2 | 119.2 | 2.780 | 20.090 | 1.940 | 0.790 | 5.270 | 0.570 |
| 135.0 | 15.2 | 134.5 | 2.090 | 19.410 | 2.120 | 0.720 | 5.490 | 0.680 |
| 150.0 | 15.3 | 149.8 | 1.850 | 14.030 | 2.100 | 0.670 | 3.520 | 0.720 |
| 165.0 | 15.2 | 164.7 | 1.770 | 9.970 | 2.320 | 0.640 | 1.800 | 0.750 |
| 180.0 | 15.2 | 179.7 | 1.900 | 8.730 | 2.490 | 0.630 | 1.250 | 0.810 |
| 195.0 | 15.2 | 194.8 | 1.840 | 14.080 | 2.330 | 0.640 | 2.150 | 0.770 |
| 210.0 | 15.2 | 209.9 | 1.930 | 15.800 | 2.210 | 0.670 | 3.630 | 0.750 |
| 225.0 | 15.2 | 225.3 | 2.200 | 18.660 | 2.360 | 0.740 | 6.130 | 0.720 |
| 240.0 | 15.2 | 240.6 | 2.810 | 16.210 | 2.090 | 0.830 | 5.880 | 0.620 |
| 255.0 | 15.3 | 255.4 | 3.280 | 15.020 | 1.420 | 0.910 | 4.790 | 0.400 |
| 270.0 | 15.3 | 270.3 | 3.340 | 13.790 | 0.450 | 0.960 | 4.020 | 0.120 |
| 285.0 | 15.3 | 285.1 | 3.500 | 13.200 | 1.580 | 0.960 | 3.280 | 0.510 |
| 300.0 | 15.2 | 299.9 | 3.260 | 12.570 | 2.930 | 0.920 | 2.700 | 0.830 |
| 315.0 | 15.2 | 314.7 | 3.340 | 9.810 | 3.470 | 0.860 | 1.980 | 1.000 |
| 330.0 | 15.2 | 329.7 | 2.540 | 8.320 | 3.360 | 0.810 | 1.340 | 1.080 |
| 345.0 | 15.2 | 344.7 | 2.590 | 6.180 | 3.570 | 0.780 | 0.660 | 1.120 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.12: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.3 | -0.1 | 2.850 | 5.580 | 3.470 | 0.840 | 0.420 | 1.100 |
| 15.0 | 20.3 | 14.9 | 2.970 | 6.880 | 3.510 | 0.840 | 0.950 | 1.090 |
| 30.0 | 20.3 | 30.0 | 3.000 | 8.540 | 3.450 | 0.860 | 1.570 | 1.060 |
| 45.0 | 20.3 | 45.0 | 2.870 | 10.620 | 3.140 | 0.890 | 2.140 | 0.980 |
| 60.0 | 20.3 | 59.9 | 3.510 | 12.160 | 3.000 | 0.920 | 2.730 | 0.820 |
| 75.0 | 20.4 | 74.8 | 3.300 | 12.040 | 1.800 | 0.910 | 2.430 | 0.530 |
| 90.0 | 20.4 | 89.7 | 3.350 | 14.080 | 0.520 | 0.880 | 3.040 | 0.140 |
| 105.0 | 20.4 | 104.7 | 2.930 | 17.530 | 1.290 | 0.830 | 3.820 | 0.330 |
| 120.0 | 20.3 | 119.6 | 2.400 | 25.960 | 1.810 | 0.760 | 7.230 | 0.530 |
| 135.0 | 20.3 | 134.9 | 2.040 | 19.210 | 1.970 | 0.700 | 5.690 | 0.630 |
| 150.0 | 20.4 | 149.9 | 1.670 | 11.400 | 1.770 | 0.640 | 3.160 | 0.640 |
| 165.0 | 20.3 | 164.8 | 1.900 | 8.360 | 2.070 | 0.530 | 1.570 | 0.600 |
| 180.0 | 20.4 | 179.9 | 1.740 | 11.930 | 2.000 | 0.580 | 1.080 | 0.700 |
| 195.0 | 20.3 | 194.8 | 2.210 | 21.120 | 2.520 | 0.680 | 2.770 | 0.810 |
| 210.0 | 20.4 | 209.9 | 2.020 | 22.230 | 2.180 | 0.630 | 3.720 | 0.650 |
| 225.0 | 20.4 | 225.0 | 2.260 | 22.750 | 1.980 | 0.700 | 5.390 | 0.610 |
| 240.0 | 20.3 | 240.3 | 3.410 | 23.450 | 2.450 | 0.800 | 7.480 | 0.580 |
| 255.0 | 20.4 | 255.2 | 2.970 | 18.430 | 1.430 | 0.880 | 4.920 | 0.380 |
| 270.0 | 20.4 | 270.1 | 3.290 | 15.190 | 0.540 | 0.930 | 3.990 | 0.150 |
| 285.0 | 20.4 | 285.0 | 3.700 | 13.570 | 1.950 | 0.960 | 3.120 | 0.510 |
| 300.0 | 20.3 | 299.9 | 3.490 | 12.150 | 2.830 | 0.940 | 2.510 | 0.820 |
| 315.0 | 20.3 | 314.8 | 3.060 | 11.040 | 3.230 | 0.910 | 1.790 | 0.980 |
| 330.0 | 20.3 | 329.8 | 2.900 | 8.760 | 3.610 | 0.870 | 1.160 | 1.060 |
| 345.0 | 20.3 | 344.8 | 2.940 | 6.570 | 3.460 | 0.850 | 0.540 | 1.090 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.13: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 3.140 | 6.520 | 3.610 | 0.910 | 0.460 | 1.070 |
| 15.0 | 25.4 | 15.0 | 3.320 | 7.180 | 3.970 | 0.910 | 0.910 | 1.060 |
| 30.0 | 25.4 | 30.0 | 3.110 | 9.140 | 3.550 | 0.920 | 1.490 | 1.030 |
| 45.0 | 25.4 | 45.0 | 3.140 | 10.440 | 3.390 | 0.940 | 2.090 | 0.950 |
| 60.0 | 25.4 | 60.0 | 3.350 | 12.660 | 2.730 | 0.940 | 2.750 | 0.810 |
| 75.0 | 25.4 | 74.9 | 3.040 | 10.810 | 1.730 | 0.910 | 2.280 | 0.530 |
| 90.0 | 25.4 | 89.8 | 3.260 | 13.750 | 0.610 | 0.850 | 2.890 | 0.170 |
| 105.0 | 25.4 | 104.8 | 2.610 | 17.820 | 1.140 | 0.790 | 3.820 | 0.300 |
| 120.0 | 25.4 | 119.9 | 2.380 | 25.580 | 1.820 | 0.740 | 8.890 | 0.520 |
| 135.0 | 25.4 | 134.9 | 1.940 | 21.980 | 1.970 | 0.630 | 5.530 | 0.540 |
| 150.0 | 25.4 | 149.9 | 1.450 | 12.570 | 1.570 | 0.540 | 3.680 | 0.580 |
| 165.0 | 25.5 | 164.9 | 1.490 | 10.510 | 1.930 | 0.570 | 2.020 | 0.690 |
| 180.0 | 25.5 | 179.9 | 2.160 | 12.400 | 2.340 | 0.670 | 1.110 | 0.720 |
| 195.0 | 25.5 | 195.0 | 1.620 | 13.380 | 1.880 | 0.580 | 2.100 | 0.670 |
| 210.0 | 25.5 | 210.0 | 1.110 | 22.180 | 1.590 | 0.470 | 3.630 | 0.530 |
| 225.0 | 25.4 | 225.0 | 1.740 | 24.600 | 1.540 | 0.720 | 6.260 | 0.610 |
| 240.0 | 25.4 | 240.1 | 2.450 | 31.780 | 2.060 | 0.770 | 8.320 | 0.530 |
| 255.0 | 25.4 | 255.1 | 2.930 | 19.560 | 1.280 | 0.850 | 4.810 | 0.360 |
| 270.0 | 25.4 | 270.1 | 3.100 | 16.350 | 0.650 | 0.900 | 3.750 | 0.180 |
| 285.0 | 25.4 | 285.0 | 3.490 | 14.590 | 1.670 | 0.950 | 2.890 | 0.510 |
| 300.0 | 25.4 | 299.9 | 3.420 | 12.690 | 2.870 | 0.960 | 2.350 | 0.800 |
| 315.0 | 25.4 | 314.9 | 2.930 | 10.980 | 3.090 | 0.950 | 1.630 | 0.950 |
| 330.0 | 25.4 | 329.9 | 3.420 | 9.440 | 3.660 | 0.930 | 1.040 | 1.030 |
| 345.0 | 25.4 | 344.9 | 3.350 | 6.860 | 3.900 | 0.920 | 0.530 | 1.060 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.14: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 3.520 | 6.830 | 3.540 | 0.980 | 0.530 | 1.040 |
| 15.0 | 30.5 | 15.0 | 3.930 | 7.810 | 3.900 | 0.980 | 0.900 | 1.030 |
| 30.0 | 30.5 | 30.0 | 3.450 | 9.230 | 3.270 | 0.980 | 1.420 | 1.000 |
| 45.0 | 30.5 | 45.0 | 3.620 | 11.150 | 3.380 | 0.980 | 1.990 | 0.930 |
| 60.0 | 30.5 | 60.0 | 3.330 | 12.640 | 2.770 | 0.970 | 2.740 | 0.790 |
| 75.0 | 30.5 | 74.9 | 3.300 | 11.540 | 1.710 | 0.910 | 2.090 | 0.530 |
| 90.0 | 30.5 | 89.9 | 3.150 | 13.250 | 0.680 | 0.830 | 2.830 | 0.190 |
| 105.0 | 30.5 | 104.9 | 2.740 | 17.320 | 0.940 | 0.760 | 4.110 | 0.280 |
| 120.0 | 30.4 | 119.9 | 2.480 | 31.750 | 1.900 | 0.740 | 9.700 | 0.510 |
| 135.0 | 30.5 | 134.9 | 1.440 | 19.390 | 1.510 | 0.480 | 5.720 | 0.500 |
| 150.0 | 30.6 | 149.8 | 1.630 | 15.440 | 1.960 | 0.620 | 3.820 | 0.670 |
| 165.0 | 30.7 | 164.9 | 2.030 | 11.790 | 2.070 | 0.590 | 2.060 | 0.700 |
| 180.0 | 30.6 | 179.8 | 2.140 | 12.350 | 2.640 | 0.590 | 1.540 | 0.730 |
| 195.0 | 30.7 | 195.0 | 1.950 | 17.220 | 2.070 | 0.590 | 2.620 | 0.690 |
| 210.0 | 30.6 | 210.1 | 2.000 | 21.450 | 2.370 | 0.630 | 4.060 | 0.650 |
| 225.0 | 30.5 | 225.0 | 2.000 | 28.150 | 1.890 | 0.590 | 5.960 | 0.530 |
| 240.0 | 30.5 | 240.0 | 2.220 | 30.900 | 1.640 | 0.700 | 8.060 | 0.450 |
| 255.0 | 30.5 | 255.1 | 3.110 | 20.410 | 1.140 | 0.820 | 4.480 | 0.350 |
| 270.0 | 30.5 | 270.0 | 3.080 | 16.660 | 0.750 | 0.870 | 3.430 | 0.200 |
| 285.0 | 30.5 | 285.0 | 3.580 | 14.320 | 1.800 | 0.950 | 2.630 | 0.510 |
| 300.0 | 30.5 | 299.9 | 3.700 | 13.370 | 2.840 | 0.990 | 2.190 | 0.780 |
| 315.0 | 30.5 | 314.9 | 3.560 | 11.560 | 3.110 | 0.990 | 1.530 | 0.920 |
| 330.0 | 30.5 | 329.9 | 3.280 | 9.260 | 3.170 | 0.990 | 1.010 | 0.990 |
| 345.0 | 30.5 | 344.9 | 3.770 | 7.750 | 3.910 | 0.980 | 0.610 | 1.020 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.15: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.1 | -21.2 | 1.970 | 13.010 | 6.650 | 0.530 | 2.680 | 1.680 |
| 15.0 | -0.2 | -12.9 | 1.660 | 9.700 | 5.700 | 0.480 | 2.020 | 1.640 |
| 30.0 | -0.5 | -0.8 | 1.620 | 10.030 | 5.550 | 0.460 | 1.730 | 1.610 |
| 45.0 | -0.9 | 12.3 | 1.810 | 15.240 | 5.990 | 0.500 | 2.850 | 1.620 |
| 60.0 | -1.1 | 23.7 | 2.590 | 18.510 | 5.670 | 0.580 | 3.930 | 1.650 |
| 75.0 | -1.8 | 34.8 | 3.330 | 28.840 | 4.980 | 0.730 | 5.600 | 1.570 |
| 90.0 | -2.2 | -14.4 | 3.540 | 41.700 | 5.160 | 0.860 | 6.560 | 1.570 |
| 105.0 | -1.6 | -3.1 | 3.690 | 46.950 | 5.060 | 0.820 | 6.370 | 1.580 |
| 120.0 | -1.2 | 13.1 | 4.510 | 23.750 | 5.370 | 0.860 | 6.320 | 1.400 |
| 135.0 | -3.2 | 107.2 | 4.360 | 37.300 | 5.240 | 1.110 | 5.760 | 1.200 |
| 150.0 | -4.1 | 109.6 | 4.230 | 22.080 | 5.710 | 1.080 | 5.660 | 1.310 |
| 165.0 | -3.7 | 111.5 | 4.060 | 26.100 | 5.120 | 1.070 | 5.540 | 1.290 |
| 180.0 | -0.8 | 153.3 | 3.720 | 20.120 | 4.800 | 0.520 | 3.490 | 1.360 |
| 195.0 | -0.3 | 17.5 | 3.660 | 19.110 | 5.990 | 0.650 | 3.680 | 1.680 |
| 210.0 | -0.3 | 387.8 | 3.450 | 17.210 | 5.950 | 0.720 | 3.980 | 1.710 |
| 225.0 | -0.3 | 393.4 | 3.920 | 17.000 | 6.040 | 0.800 | 4.380 | 1.730 |
| 240.0 | -0.1 | 392.3 | 3.600 | 18.140 | 5.130 | 0.890 | 4.810 | 1.690 |
| 255.0 | 0.5 | 310.5 | 3.860 | 18.440 | 5.500 | 1.100 | 5.300 | 1.520 |
| 270.0 | -0.1 | 314.6 | 3.820 | 24.190 | 5.570 | 1.080 | 5.290 | 1.560 |
| 285.0 | -0.2 | 305.4 | 3.760 | 19.020 | 5.190 | 0.950 | 4.630 | 1.700 |
| 300.0 | -0.3 | 310.6 | 3.200 | 17.990 | 5.580 | 0.860 | 4.400 | 1.740 |
| 315.0 | -0.2 | 316.2 | 3.090 | 19.780 | 5.810 | 0.770 | 4.390 | 1.770 |
| 330.0 | -0.1 | 323.1 | 2.700 | 16.810 | 6.210 | 0.680 | 3.710 | 1.750 |
| 345.0 | -0.1 | 330.8 | 2.540 | 16.720 | 6.500 | 0.600 | 3.220 | 1.720 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.16: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.0 | -12.7 | 1.730 | 9.920 | 5.490 | 0.500 | 1.930 | 1.640 |
| 15.0 | 3.9 | -1.6 | 1.660 | 10.880 | 5.230 | 0.480 | 1.820 | 1.610 |
| 30.0 | 3.9 | 10.9 | 1.730 | 10.050 | 5.710 | 0.490 | 1.850 | 1.610 |
| 45.0 | 3.8 | 22.6 | 2.070 | 13.670 | 6.090 | 0.550 | 2.320 | 1.650 |
| 60.0 | 3.8 | 32.4 | 2.500 | 16.360 | 5.970 | 0.620 | 3.090 | 1.680 |
| 75.0 | 3.7 | 39.8 | 2.750 | 18.030 | 5.600 | 0.700 | 3.570 | 1.700 |
| 90.0 | 3.6 | 42.9 | 3.210 | 22.320 | 5.420 | 0.750 | 3.790 | 1.690 |
| 105.0 | 3.6 | 45.4 | 3.660 | 34.670 | 5.030 | 0.790 | 4.050 | 1.680 |
| 120.0 | 3.7 | 45.3 | 3.340 | 43.950 | 5.370 | 0.770 | 4.250 | 1.680 |
| 135.0 | 3.7 | 42.8 | 3.110 | 19.900 | 5.420 | 0.730 | 3.780 | 1.690 |
| 150.0 | 3.7 | 44.0 | 2.930 | 17.500 | 5.580 | 0.730 | 3.600 | 1.710 |
| 165.0 | 3.8 | 51.5 | 3.160 | 18.060 | 5.370 | 0.730 | 4.140 | 1.710 |
| 180.0 | 4.7 | 178.8 | 1.430 | 10.670 | 3.600 | 0.440 | 2.290 | 1.150 |
| 195.0 | 4.6 | 196.7 | 1.570 | 10.770 | 3.690 | 0.480 | 2.560 | 1.210 |
| 210.0 | 4.1 | 373.7 | 4.000 | 14.600 | 5.490 | 0.660 | 3.440 | 1.680 |
| 225.0 | 4.4 | 300.1 | 3.970 | 19.320 | 4.800 | 1.010 | 4.380 | 1.580 |
| 240.0 | 4.5 | 289.0 | 4.350 | 18.900 | 4.310 | 1.220 | 4.550 | 1.340 |
| 255.0 | 4.4 | 290.4 | 4.070 | 21.440 | 4.300 | 1.210 | 4.760 | 1.410 |
| 270.0 | 4.3 | 294.0 | 4.190 | 20.320 | 5.120 | 1.150 | 4.480 | 1.500 |
| 285.0 | 4.4 | 296.8 | 4.500 | 19.360 | 4.910 | 1.100 | 4.400 | 1.590 |
| 300.0 | 4.6 | 302.9 | 3.650 | 17.330 | 5.400 | 0.980 | 4.220 | 1.720 |
| 315.0 | 4.6 | 314.4 | 2.880 | 17.390 | 5.820 | 0.790 | 3.470 | 1.780 |
| 330.0 | 4.5 | 326.6 | 2.460 | 15.230 | 5.870 | 0.650 | 2.760 | 1.740 |
| 345.0 | 4.3 | 338.2 | 1.860 | 11.690 | 5.800 | 0.540 | 2.310 | 1.670 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.17: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.7 | -1.2 | 1.950 | 9.630 | 5.060 | 0.590 | 1.380 | 1.580 |
| 15.0 | 9.7 | 13.7 | 2.070 | 11.500 | 5.240 | 0.610 | 1.480 | 1.600 |
| 30.0 | 9.7 | 28.7 | 2.230 | 10.980 | 5.270 | 0.680 | 1.900 | 1.660 |
| 45.0 | 9.7 | 43.7 | 3.130 | 14.240 | 5.500 | 0.820 | 2.570 | 1.710 |
| 60.0 | 9.7 | 58.1 | 3.450 | 18.820 | 5.060 | 1.000 | 3.320 | 1.640 |
| 75.0 | 9.7 | 71.5 | 3.960 | 23.250 | 4.440 | 1.190 | 3.870 | 1.330 |
| 90.0 | 8.7 | 77.7 | 4.260 | 24.350 | 3.660 | 1.250 | 4.490 | 1.000 |
| 105.0 | 8.6 | 81.7 | 4.390 | 43.870 | 3.060 | 1.260 | 4.970 | 0.780 |
| 120.0 | 8.5 | 85.6 | 4.830 | 27.780 | 3.160 | 1.260 | 5.310 | 0.650 |
| 135.0 | 8.5 | 100.0 | 4.260 | 25.710 | 4.310 | 1.130 | 5.690 | 0.840 |
| 150.0 | 9.3 | 145.5 | 1.490 | 20.820 | 3.120 | 0.540 | 6.480 | 1.110 |
| 165.0 | 9.7 | 162.2 | 1.200 | 23.540 | 2.650 | 0.440 | 6.580 | 0.980 |
| 180.0 | 9.9 | 178.2 | 1.150 | 21.950 | 2.680 | 0.420 | 5.290 | 0.970 |
| 195.0 | 10.0 | 194.6 | 1.250 | 15.410 | 2.780 | 0.450 | 4.220 | 1.020 |
| 210.0 | 9.8 | 211.6 | 1.510 | 17.130 | 2.990 | 0.560 | 5.560 | 1.140 |
| 225.0 | 8.9 | 239.9 | 4.160 | 21.720 | 4.630 | 0.950 | 5.680 | 1.190 |
| 240.0 | 8.5 | 268.0 | 4.890 | 41.060 | 4.910 | 1.300 | 5.730 | 0.740 |
| 255.0 | 8.5 | 273.6 | 4.650 | 29.080 | 4.650 | 1.360 | 4.980 | 0.630 |
| 270.0 | 9.0 | 279.6 | 4.460 | 20.860 | 4.040 | 1.370 | 4.270 | 0.850 |
| 285.0 | 9.9 | 287.8 | 4.880 | 18.800 | 4.560 | 1.280 | 3.780 | 1.340 |
| 300.0 | 9.9 | 300.3 | 3.660 | 14.170 | 4.980 | 1.090 | 3.430 | 1.670 |
| 315.0 | 9.8 | 314.3 | 3.110 | 14.420 | 5.910 | 0.880 | 3.030 | 1.750 |
| 330.0 | 9.7 | 329.0 | 2.470 | 13.650 | 5.600 | 0.720 | 2.210 | 1.700 |
| 345.0 | 9.7 | 343.9 | 1.950 | 11.660 | 5.110 | 0.630 | 1.620 | 1.620 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.18: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.0 | -0.5 | 2.320 | 9.280 | 4.680 | 0.730 | 1.220 | 1.530 |
| 15.0 | 15.0 | 14.6 | 2.420 | 9.750 | 4.980 | 0.750 | 1.330 | 1.550 |
| 30.0 | 15.0 | 29.6 | 2.650 | 11.130 | 5.000 | 0.830 | 1.670 | 1.610 |
| 45.0 | 15.0 | 44.7 | 3.190 | 14.200 | 4.970 | 0.960 | 2.250 | 1.660 |
| 60.0 | 15.0 | 59.4 | 3.970 | 20.080 | 5.490 | 1.120 | 2.830 | 1.590 |
| 75.0 | 15.1 | 73.6 | 4.300 | 21.900 | 4.530 | 1.250 | 3.160 | 1.240 |
| 90.0 | 14.8 | 87.3 | 4.330 | 25.760 | 2.830 | 1.260 | 4.060 | 0.390 |
| 105.0 | 14.6 | 101.8 | 4.750 | 33.550 | 3.580 | 1.080 | 5.960 | 0.670 |
| 120.0 | 14.5 | 115.8 | 4.330 | 33.710 | 3.570 | 0.880 | 7.470 | 0.930 |
| 135.0 | 14.9 | 133.2 | 2.320 | 24.450 | 3.210 | 0.640 | 8.930 | 0.950 |
| 150.0 | 15.0 | 149.1 | 1.380 | 23.510 | 2.790 | 0.500 | 6.650 | 0.880 |
| 165.0 | 15.0 | 164.2 | 1.200 | 19.780 | 2.360 | 0.370 | 3.890 | 0.770 |
| 180.0 | 15.1 | 179.2 | 1.110 | 19.130 | 2.550 | 0.430 | 3.290 | 0.840 |
| 195.0 | 15.0 | 194.5 | 1.270 | 23.110 | 2.910 | 0.460 | 4.710 | 1.010 |
| 210.0 | 15.0 | 209.7 | 1.420 | 22.190 | 2.740 | 0.480 | 6.440 | 0.910 |
| 225.0 | 15.0 | 226.9 | 3.360 | 23.690 | 3.690 | 0.690 | 9.190 | 1.060 |
| 240.0 | 14.4 | 244.9 | 4.030 | 29.050 | 4.310 | 0.970 | 7.720 | 0.980 |
| 255.0 | 14.4 | 259.4 | 4.240 | 37.030 | 3.590 | 1.210 | 6.380 | 0.760 |
| 270.0 | 14.7 | 273.0 | 4.670 | 20.040 | 2.140 | 1.370 | 4.890 | 0.400 |
| 285.0 | 15.2 | 286.3 | 4.760 | 16.910 | 4.510 | 1.340 | 3.640 | 1.250 |
| 300.0 | 15.1 | 300.0 | 4.310 | 17.770 | 5.140 | 1.180 | 3.260 | 1.610 |
| 315.0 | 15.0 | 314.5 | 3.540 | 14.390 | 5.580 | 1.000 | 2.610 | 1.690 |
| 330.0 | 15.0 | 329.5 | 2.830 | 12.730 | 5.210 | 0.850 | 1.970 | 1.640 |
| 345.0 | 15.0 | 344.5 | 2.550 | 9.680 | 4.780 | 0.770 | 1.420 | 1.570 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.19: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.2 | -0.2 | 2.800 | 8.860 | 4.790 | 0.870 | 1.110 | 1.470 |
| 15.0 | 20.2 | 14.8 | 2.900 | 9.890 | 4.880 | 0.890 | 1.210 | 1.500 |
| 30.0 | 20.2 | 29.8 | 3.160 | 12.320 | 5.120 | 0.970 | 1.610 | 1.560 |
| 45.0 | 20.2 | 44.9 | 3.450 | 15.500 | 4.940 | 1.090 | 2.080 | 1.600 |
| 60.0 | 20.2 | 59.7 | 3.890 | 20.170 | 5.010 | 1.210 | 2.670 | 1.530 |
| 75.0 | 20.3 | 74.2 | 4.150 | 20.610 | 4.260 | 1.300 | 2.820 | 1.190 |
| 90.0 | 20.1 | 88.5 | 4.350 | 24.060 | 2.440 | 1.230 | 3.830 | 0.320 |
| 105.0 | 20.1 | 103.6 | 4.430 | 32.570 | 3.540 | 1.010 | 6.690 | 0.650 |
| 120.0 | 20.1 | 118.8 | 2.600 | 29.890 | 3.060 | 0.790 | 10.740 | 0.800 |
| 135.0 | 20.1 | 134.5 | 1.950 | 29.490 | 2.780 | 0.610 | 9.960 | 0.880 |
| 150.0 | 20.2 | 149.6 | 1.700 | 21.540 | 3.180 | 0.570 | 6.400 | 0.930 |
| 165.0 | 20.3 | 164.2 | 1.170 | 19.830 | 2.490 | 0.450 | 3.820 | 0.820 |
| 180.0 | 20.6 | 179.6 | 1.340 | 22.170 | 2.670 | 0.390 | 3.010 | 0.760 |
| 195.0 | 20.4 | 194.5 | 1.170 | 27.910 | 2.290 | 0.430 | 5.400 | 0.770 |
| 210.0 | 20.2 | 210.0 | 1.700 | 33.990 | 3.230 | 0.580 | 7.890 | 0.950 |
| 225.0 | 20.1 | 225.4 | 2.020 | 32.210 | 2.610 | 0.590 | 10.360 | 0.880 |
| 240.0 | 20.1 | 241.3 | 2.710 | 33.780 | 3.240 | 0.850 | 11.460 | 0.950 |
| 255.0 | 19.9 | 257.2 | 5.580 | 37.840 | 2.890 | 1.130 | 7.580 | 0.740 |
| 270.0 | 20.0 | 271.7 | 4.480 | 25.870 | 2.580 | 1.340 | 5.460 | 0.350 |
| 285.0 | 20.3 | 285.8 | 4.660 | 17.920 | 4.420 | 1.380 | 3.930 | 1.200 |
| 300.0 | 20.3 | 300.0 | 4.010 | 15.500 | 5.010 | 1.270 | 3.330 | 1.550 |
| 315.0 | 20.2 | 314.8 | 4.020 | 12.910 | 4.910 | 1.120 | 2.580 | 1.620 |
| 330.0 | 20.2 | 329.8 | 3.370 | 10.610 | 5.200 | 0.990 | 1.830 | 1.570 |
| 345.0 | 20.2 | 344.8 | 2.730 | 8.960 | 4.640 | 0.900 | 1.310 | 1.500 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.20: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.4 | -0.1 | 3.220 | 10.000 | 4.760 | 0.960 | 1.090 | 1.400 |
| 15.0 | 25.4 | 14.9 | 3.060 | 11.100 | 4.560 | 0.990 | 1.190 | 1.420 |
| 30.0 | 25.4 | 29.9 | 3.670 | 13.490 | 4.610 | 1.070 | 1.650 | 1.490 |
| 45.0 | 25.3 | 44.9 | 3.910 | 16.960 | 4.870 | 1.190 | 2.140 | 1.540 |
| 60.0 | 25.3 | 59.8 | 3.890 | 19.450 | 4.460 | 1.290 | 2.630 | 1.470 |
| 75.0 | 25.3 | 74.4 | 4.990 | 25.450 | 4.560 | 1.340 | 2.950 | 1.160 |
| 90.0 | 25.2 | 89.0 | 4.480 | 24.770 | 2.570 | 1.200 | 3.870 | 0.310 |
| 105.0 | 25.2 | 104.3 | 3.760 | 40.450 | 4.500 | 0.970 | 9.220 | 0.660 |
| 120.0 | 25.1 | 119.3 | 2.740 | 37.050 | 3.340 | 0.720 | 13.550 | 0.740 |
| 135.0 | 25.1 | 134.7 | 1.800 | 29.940 | 2.780 | 0.590 | 10.410 | 0.840 |
| 150.0 | 25.3 | 149.6 | 1.600 | 22.940 | 2.780 | 0.470 | 5.810 | 0.780 |
| 165.0 | 25.7 | 164.6 | 1.080 | 20.870 | 2.300 | 0.390 | 3.100 | 0.720 |
| 180.0 | 25.5 | 179.7 | 1.140 | 24.740 | 2.490 | 0.350 | 3.770 | 0.650 |
| 195.0 | 25.7 | 195.1 | 1.170 | 23.980 | 2.470 | 0.380 | 3.950 | 0.720 |
| 210.0 | 25.4 | 210.2 | 1.400 | 25.670 | 2.150 | 0.470 | 6.460 | 0.800 |
| 225.0 | 25.0 | 225.8 | 2.960 | 38.750 | 3.830 | 0.750 | 12.020 | 1.030 |
| 240.0 | 25.2 | 240.7 | 2.330 | 40.120 | 3.150 | 0.790 | 15.290 | 0.890 |
| 255.0 | 25.2 | 256.0 | 4.900 | 34.030 | 2.710 | 1.070 | 8.730 | 0.720 |
| 270.0 | 25.2 | 271.1 | 4.140 | 21.010 | 1.870 | 1.300 | 5.820 | 0.340 |
| 285.0 | 25.4 | 285.6 | 5.200 | 19.640 | 4.330 | 1.410 | 4.570 | 1.150 |
| 300.0 | 25.4 | 300.1 | 4.330 | 13.710 | 4.800 | 1.340 | 3.510 | 1.480 |
| 315.0 | 25.4 | 314.9 | 3.850 | 12.770 | 4.970 | 1.220 | 2.850 | 1.540 |
| 330.0 | 25.4 | 329.9 | 3.530 | 9.740 | 4.500 | 1.090 | 1.940 | 1.490 |
| 345.0 | 25.4 | 344.9 | 3.120 | 9.190 | 4.500 | 1.000 | 1.340 | 1.420 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.21: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 3.210 | 10.420 | 4.270 | 1.020 | 1.200 | 1.310 |
| 15.0 | 30.5 | 14.9 | 3.440 | 12.190 | 4.300 | 1.050 | 1.280 | 1.340 |
| 30.0 | 30.5 | 29.9 | 3.720 | 17.440 | 4.820 | 1.140 | 1.820 | 1.410 |
| 45.0 | 30.5 | 44.9 | 4.120 | 19.680 | 4.510 | 1.270 | 2.380 | 1.470 |
| 60.0 | 30.4 | 59.8 | 4.800 | 22.170 | 4.640 | 1.360 | 2.830 | 1.420 |
| 75.0 | 30.4 | 74.5 | 4.930 | 21.250 | 3.570 | 1.360 | 2.910 | 1.110 |
| 90.0 | 30.4 | 89.3 | 4.040 | 23.870 | 2.540 | 1.170 | 4.110 | 0.320 |
| 105.0 | 30.3 | 104.5 | 3.440 | 38.170 | 3.900 | 0.930 | 10.740 | 0.600 |
| 120.0 | 30.1 | 119.4 | 2.260 | 37.960 | 2.750 | 0.670 | 14.760 | 0.770 |
| 135.0 | 30.2 | 134.6 | 2.060 | 30.450 | 2.920 | 0.590 | 10.030 | 0.860 |
| 150.0 | 31.0 | 149.1 | 1.440 | 28.790 | 2.810 | 0.430 | 5.510 | 0.740 |
| 165.0 | 30.1 | 164.8 | 1.090 | 24.670 | 2.770 | 0.390 | 4.270 | 0.690 |
| 180.0 | 30.6 | 179.4 | 1.200 | 26.930 | 2.770 | 0.310 | 5.130 | 0.560 |
| 195.0 | 30.2 | 194.5 | 1.320 | 31.850 | 2.760 | 0.400 | 5.980 | 0.720 |
| 210.0 | 31.1 | 210.4 | 1.280 | 36.510 | 2.560 | 0.410 | 7.020 | 0.710 |
| 225.0 | 30.4 | 225.3 | 1.980 | 32.530 | 3.050 | 0.570 | 9.550 | 0.910 |
| 240.0 | 29.9 | 241.2 | 4.310 | 45.030 | 3.610 | 0.840 | 17.340 | 1.010 |
| 255.0 | 30.3 | 255.5 | 3.930 | 45.620 | 3.810 | 1.020 | 11.160 | 0.740 |
| 270.0 | 30.4 | 270.7 | 4.120 | 21.370 | 1.500 | 1.260 | 5.860 | 0.350 |
| 285.0 | 30.5 | 285.4 | 4.730 | 21.290 | 3.890 | 1.440 | 5.520 | 1.110 |
| 300.0 | 30.5 | 300.1 | 4.740 | 16.680 | 4.680 | 1.410 | 4.260 | 1.420 |
| 315.0 | 30.5 | 315.1 | 3.790 | 15.450 | 4.630 | 1.290 | 3.380 | 1.460 |
| 330.0 | 30.5 | 330.1 | 3.410 | 10.940 | 4.300 | 1.160 | 2.190 | 1.400 |
| 345.0 | 30.5 | 345.0 | 3.450 | 10.330 | 4.480 | 1.050 | 1.480 | 1.340 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.22: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.1 | -18.5 | 3.710 | 14.340 | 5.570 | 1.060 | 3.730 | 1.650 |
| 15.0 | -0.5 | -12.0 | 3.010 | 13.020 | 6.710 | 1.040 | 3.380 | 1.670 |
| 30.0 | -0.8 | -3.6 | 3.250 | 16.160 | 6.420 | 1.030 | 3.590 | 1.660 |
| 45.0 | -1.2 | -58.6 | 4.700 | 22.580 | 5.440 | 1.210 | 7.060 | 1.250 |
| 60.0 | -0.3 | 32.5 | 4.060 | 22.050 | 5.210 | 1.080 | 5.310 | 1.540 |
| 75.0 | -0.1 | 49.5 | 4.740 | 23.580 | 4.410 | 1.170 | 6.130 | 1.370 |
| 90.0 | 0.2 | 65.1 | 4.510 | 20.270 | 3.900 | 1.280 | 6.310 | 1.040 |
| 105.0 | -0.0 | 88.9 | 5.110 | 22.150 | 2.200 | 1.390 | 6.730 | 0.300 |
| 120.0 | -0.7 | 99.4 | 4.930 | 23.370 | 2.940 | 1.370 | 6.920 | 0.540 |
| 135.0 | -1.3 | 106.4 | 5.140 | 24.960 | 3.470 | 1.340 | 6.980 | 0.800 |
| 150.0 | -1.8 | 109.3 | 4.580 | 23.920 | 3.930 | 1.310 | 6.930 | 0.930 |
| 165.0 | -1.4 | 56.9 | 4.630 | 18.780 | 5.920 | 1.210 | 5.950 | 1.290 |
| 180.0 | -0.9 | 37.8 | 3.600 | 17.360 | 6.710 | 1.090 | 4.630 | 1.590 |
| 195.0 | -0.1 | 374.4 | 3.800 | 17.290 | 5.370 | 1.110 | 4.690 | 1.590 |
| 210.0 | 0.1 | 378.5 | 4.560 | 18.310 | 5.390 | 1.200 | 5.260 | 1.480 |
| 225.0 | 0.3 | 365.6 | 4.710 | 18.800 | 4.920 | 1.280 | 6.180 | 1.310 |
| 240.0 | 0.6 | 277.2 | 5.440 | 19.900 | 3.150 | 1.480 | 6.220 | 0.510 |
| 255.0 | 0.5 | 285.1 | 4.920 | 21.010 | 2.760 | 1.460 | 6.100 | 0.750 |
| 270.0 | 0.5 | 293.6 | 5.190 | 19.060 | 3.610 | 1.410 | 5.900 | 1.030 |
| 285.0 | 0.4 | 300.7 | 4.870 | 19.050 | 4.580 | 1.350 | 5.740 | 1.220 |
| 300.0 | 0.3 | 309.0 | 4.310 | 19.190 | 5.260 | 1.280 | 5.720 | 1.390 |
| 315.0 | 0.2 | 316.0 | 4.190 | 19.140 | 5.070 | 1.220 | 5.410 | 1.490 |
| 330.0 | 0.1 | 324.5 | 3.990 | 18.650 | 5.240 | 1.160 | 5.180 | 1.570 |
| 345.0 | 0.0 | 332.4 | 3.870 | 17.090 | 5.450 | 1.120 | 4.420 | 1.620 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.23: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 4.2 | -12.0 | 3.770 | 15.020 | 5.410 | 1.040 | 3.240 | 1.690 |
| 15.0 | 4.0 | -7.0 | 3.530 | 14.040 | 5.850 | 1.030 | 3.180 | 1.700 |
| 30.0 | 3.9 | 0.5 | 3.950 | 14.830 | 6.190 | 1.030 | 3.240 | 1.700 |
| 45.0 | 3.9 | 11.1 | 3.740 | 15.920 | 5.540 | 1.030 | 3.560 | 1.660 |
| 60.0 | 4.0 | 29.4 | 4.200 | 20.060 | 5.540 | 1.080 | 4.850 | 1.590 |
| 75.0 | 4.1 | 49.3 | 4.670 | 20.180 | 5.120 | 1.190 | 5.560 | 1.400 |
| 90.0 | 4.2 | 61.7 | 4.240 | 22.710 | 4.050 | 1.270 | 5.990 | 1.150 |
| 105.0 | 4.3 | 78.3 | 5.090 | 20.190 | 2.610 | 1.360 | 6.130 | 0.620 |
| 120.0 | 4.1 | 92.0 | 5.280 | 23.610 | 3.170 | 1.370 | 6.370 | 0.330 |
| 135.0 | 4.0 | 100.0 | 5.660 | 24.640 | 3.840 | 1.350 | 6.540 | 0.520 |
| 150.0 | 3.9 | 53.6 | 4.990 | 19.270 | 4.850 | 1.210 | 5.780 | 1.370 |
| 165.0 | 4.0 | 54.1 | 4.360 | 17.330 | 5.040 | 1.200 | 5.500 | 1.430 |
| 180.0 | 4.0 | 63.4 | 4.520 | 17.500 | 4.550 | 1.210 | 5.660 | 1.440 |
| 195.0 | 4.7 | 195.6 | 3.450 | 13.090 | 4.370 | 1.010 | 3.490 | 1.430 |
| 210.0 | 4.4 | 219.3 | 3.730 | 16.110 | 4.390 | 1.130 | 4.730 | 1.360 |
| 225.0 | 4.3 | 251.8 | 5.050 | 21.490 | 3.750 | 1.380 | 5.980 | 0.870 |
| 240.0 | 4.3 | 260.6 | 4.940 | 19.790 | 3.480 | 1.450 | 6.160 | 0.600 |
| 255.0 | 4.4 | 270.2 | 4.880 | 19.390 | 2.130 | 1.480 | 6.080 | 0.330 |
| 270.0 | 4.6 | 280.1 | 5.080 | 20.810 | 2.030 | 1.480 | 5.800 | 0.520 |
| 285.0 | 4.8 | 290.4 | 5.210 | 19.380 | 3.410 | 1.420 | 5.490 | 0.950 |
| 300.0 | 4.9 | 302.4 | 4.600 | 17.380 | 4.350 | 1.320 | 5.010 | 1.300 |
| 315.0 | 4.8 | 314.6 | 4.790 | 16.440 | 5.020 | 1.220 | 4.490 | 1.510 |
| 330.0 | 4.8 | 327.8 | 3.870 | 16.920 | 4.980 | 1.130 | 3.930 | 1.620 |
| 345.0 | 4.5 | 339.9 | 3.880 | 14.800 | 5.670 | 1.070 | 3.380 | 1.680 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.24: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.8 | -1.3 | 4.190 | 9.950 | 6.440 | 1.070 | 1.320 | 1.690 |
| 15.0 | 9.8 | 13.7 | 3.910 | 11.450 | 6.600 | 1.070 | 2.040 | 1.680 |
| 30.0 | 9.8 | 28.7 | 4.390 | 14.260 | 6.110 | 1.120 | 3.000 | 1.610 |
| 45.0 | 9.9 | 43.8 | 3.920 | 15.410 | 5.190 | 1.190 | 3.690 | 1.500 |
| 60.0 | 9.9 | 58.5 | 4.400 | 18.640 | 4.080 | 1.280 | 4.310 | 1.270 |
| 75.0 | 10.0 | 73.1 | 5.260 | 20.640 | 2.950 | 1.350 | 4.600 | 0.830 |
| 90.0 | 9.9 | 87.8 | 4.440 | 20.330 | 0.900 | 1.370 | 5.280 | 0.190 |
| 105.0 | 9.9 | 102.5 | 4.890 | 22.460 | 1.880 | 1.320 | 5.670 | 0.500 |
| 120.0 | 9.5 | 116.3 | 4.360 | 22.030 | 3.310 | 1.220 | 5.490 | 0.860 |
| 135.0 | 9.5 | 131.2 | 4.280 | 18.990 | 3.880 | 1.120 | 5.120 | 1.080 |
| 150.0 | 9.6 | 147.0 | 3.350 | 19.730 | 3.910 | 1.020 | 4.970 | 1.180 |
| 165.0 | 9.7 | 162.7 | 3.430 | 19.200 | 4.650 | 0.960 | 4.730 | 1.220 |
| 180.0 | 9.8 | 178.5 | 3.290 | 17.170 | 4.400 | 0.960 | 3.970 | 1.280 |
| 195.0 | 9.9 | 194.5 | 3.470 | 14.590 | 4.580 | 0.970 | 3.520 | 1.260 |
| 210.0 | 9.9 | 210.9 | 3.470 | 14.750 | 3.860 | 1.050 | 4.870 | 1.250 |
| 225.0 | 9.7 | 227.5 | 3.890 | 15.330 | 4.120 | 1.170 | 5.830 | 1.170 |
| 240.0 | 9.6 | 243.5 | 4.920 | 16.890 | 3.720 | 1.300 | 6.230 | 0.960 |
| 255.0 | 9.8 | 257.7 | 5.120 | 20.480 | 2.440 | 1.410 | 6.330 | 0.570 |
| 270.0 | 10.0 | 272.0 | 5.180 | 17.950 | 1.120 | 1.480 | 5.920 | 0.190 |
| 285.0 | 10.1 | 286.1 | 5.280 | 18.290 | 2.910 | 1.450 | 5.070 | 0.800 |
| 300.0 | 10.1 | 300.2 | 4.920 | 16.080 | 4.320 | 1.350 | 4.260 | 1.250 |
| 315.0 | 10.0 | 314.4 | 4.400 | 14.590 | 4.810 | 1.240 | 3.460 | 1.500 |
| 330.0 | 9.9 | 329.0 | 4.380 | 14.310 | 6.180 | 1.150 | 2.590 | 1.620 |
| 345.0 | 9.9 | 343.8 | 4.170 | 10.980 | 6.090 | 1.090 | 1.630 | 1.680 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.25: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 15.0 | -0.5 | 3.750 | 8.920 | 5.130 | 1.150 | 0.990 | 1.670 |
| 15.0 | 15.0 | 14.6 | 4.010 | 10.320 | 5.200 | 1.160 | 1.700 | 1.650 |
| 30.0 | 15.0 | 29.7 | 4.200 | 12.990 | 5.660 | 1.190 | 2.510 | 1.590 |
| 45.0 | 15.1 | 44.7 | 5.020 | 15.090 | 5.060 | 1.250 | 3.140 | 1.470 |
| 60.0 | 15.1 | 59.5 | 4.660 | 16.000 | 4.040 | 1.310 | 3.740 | 1.240 |
| 75.0 | 15.2 | 74.2 | 4.930 | 18.610 | 2.630 | 1.350 | 3.910 | 0.800 |
| 90.0 | 15.2 | 89.0 | 4.690 | 19.620 | 0.810 | 1.340 | 4.730 | 0.190 |
| 105.0 | 15.2 | 104.0 | 4.680 | 23.580 | 1.860 | 1.270 | 5.540 | 0.500 |
| 120.0 | 15.0 | 118.3 | 4.410 | 25.350 | 2.740 | 1.180 | 6.540 | 0.790 |
| 135.0 | 15.0 | 133.7 | 3.410 | 23.800 | 3.170 | 1.060 | 7.320 | 0.970 |
| 150.0 | 15.3 | 149.5 | 2.820 | 17.560 | 3.120 | 1.000 | 4.820 | 1.060 |
| 165.0 | 15.2 | 164.4 | 2.750 | 13.690 | 3.590 | 0.960 | 2.760 | 1.100 |
| 180.0 | 15.2 | 179.3 | 2.640 | 16.100 | 3.240 | 0.950 | 2.620 | 1.160 |
| 195.0 | 15.1 | 194.5 | 2.590 | 21.410 | 3.440 | 0.950 | 3.430 | 1.120 |
| 210.0 | 15.1 | 209.9 | 2.850 | 21.970 | 3.470 | 1.010 | 5.730 | 1.140 |
| 225.0 | 15.0 | 225.9 | 3.470 | 20.080 | 3.650 | 1.120 | 7.780 | 1.040 |
| 240.0 | 15.0 | 241.5 | 4.690 | 21.110 | 3.070 | 1.240 | 7.880 | 0.900 |
| 255.0 | 15.1 | 256.2 | 5.010 | 20.230 | 2.050 | 1.370 | 7.020 | 0.580 |
| 270.0 | 15.2 | 270.9 | 5.090 | 19.250 | 0.980 | 1.450 | 6.200 | 0.200 |
| 285.0 | 15.2 | 285.4 | 4.780 | 19.310 | 2.420 | 1.450 | 5.070 | 0.770 |
| 300.0 | 15.2 | 299.9 | 5.000 | 16.610 | 4.480 | 1.380 | 3.840 | 1.230 |
| 315.0 | 15.1 | 314.5 | 4.920 | 14.100 | 4.990 | 1.290 | 2.740 | 1.470 |
| 330.0 | 15.0 | 329.4 | 3.970 | 11.990 | 5.120 | 1.220 | 1.940 | 1.600 |
| 345.0 | 15.0 | 344.4 | 3.760 | 10.410 | 5.340 | 1.170 | 1.190 | 1.650 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.26: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.2 | -0.2 | 4.500 | 8.810 | 5.130 | 1.240 | 0.990 | 1.620 |
| 15.0 | 20.2 | 14.9 | 4.340 | 10.460 | 5.310 | 1.250 | 1.630 | 1.600 |
| 30.0 | 20.2 | 29.9 | 4.240 | 11.960 | 5.070 | 1.270 | 2.380 | 1.550 |
| 45.0 | 20.2 | 45.0 | 4.410 | 13.910 | 4.290 | 1.310 | 3.040 | 1.440 |
| 60.0 | 20.3 | 59.8 | 5.160 | 16.850 | 4.550 | 1.350 | 3.630 | 1.210 |
| 75.0 | 20.3 | 74.6 | 4.950 | 17.210 | 2.710 | 1.350 | 3.650 | 0.800 |
| 90.0 | 20.3 | 89.5 | 4.430 | 19.110 | 0.900 | 1.300 | 4.450 | 0.230 |
| 105.0 | 20.3 | 104.5 | 4.660 | 25.020 | 2.050 | 1.230 | 5.680 | 0.470 |
| 120.0 | 20.2 | 119.3 | 3.780 | 30.170 | 3.110 | 1.130 | 8.460 | 0.720 |
| 135.0 | 20.2 | 134.7 | 3.560 | 25.740 | 3.160 | 1.060 | 8.700 | 0.980 |
| 150.0 | 20.3 | 149.7 | 2.440 | 16.440 | 2.310 | 0.880 | 4.030 | 0.830 |
| 165.0 | 20.2 | 164.6 | 2.270 | 14.020 | 2.770 | 0.790 | 2.550 | 0.880 |
| 180.0 | 20.4 | 179.8 | 2.620 | 20.690 | 2.930 | 0.870 | 2.330 | 1.020 |
| 195.0 | 20.3 | 194.9 | 3.360 | 29.010 | 3.760 | 1.030 | 4.840 | 1.210 |
| 210.0 | 20.3 | 210.0 | 3.040 | 31.850 | 3.160 | 0.950 | 6.190 | 1.030 |
| 225.0 | 20.3 | 225.0 | 3.650 | 30.740 | 3.280 | 1.030 | 7.570 | 0.880 |
| 240.0 | 20.2 | 240.7 | 4.750 | 27.040 | 3.210 | 1.180 | 9.760 | 0.820 |
| 255.0 | 20.3 | 255.6 | 4.590 | 25.890 | 1.980 | 1.320 | 7.530 | 0.560 |
| 270.0 | 20.3 | 270.4 | 4.830 | 22.150 | 1.040 | 1.410 | 6.320 | 0.240 |
| 285.0 | 20.3 | 285.2 | 5.760 | 22.020 | 2.500 | 1.440 | 5.080 | 0.760 |
| 300.0 | 20.3 | 299.9 | 5.210 | 16.380 | 4.160 | 1.410 | 3.570 | 1.200 |
| 315.0 | 20.2 | 314.6 | 4.570 | 15.010 | 4.950 | 1.360 | 2.550 | 1.430 |
| 330.0 | 20.2 | 329.6 | 4.010 | 12.170 | 4.940 | 1.300 | 1.610 | 1.550 |
| 345.0 | 20.2 | 344.7 | 4.430 | 10.070 | 5.130 | 1.260 | 1.050 | 1.600 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.27: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.3 | -0.1 | 4.710 | 10.280 | 5.060 | 1.340 | 1.110 | 1.560 |
| 15.0 | 25.3 | 15.0 | 5.020 | 11.040 | 5.360 | 1.340 | 1.610 | 1.550 |
| 30.0 | 25.3 | 30.0 | 4.650 | 13.160 | 4.980 | 1.360 | 2.310 | 1.500 |
| 45.0 | 25.3 | 45.0 | 4.560 | 15.220 | 4.500 | 1.380 | 2.980 | 1.400 |
| 60.0 | 25.4 | 59.9 | 5.040 | 17.710 | 4.190 | 1.380 | 3.710 | 1.190 |
| 75.0 | 25.4 | 74.8 | 4.680 | 16.850 | 2.660 | 1.350 | 3.430 | 0.790 |
| 90.0 | 25.4 | 89.7 | 4.280 | 18.890 | 1.020 | 1.260 | 4.420 | 0.260 |
| 105.0 | 25.4 | 104.7 | 4.240 | 26.320 | 1.880 | 1.170 | 5.930 | 0.430 |
| 120.0 | 25.3 | 119.8 | 3.600 | 32.750 | 2.730 | 1.110 | 11.590 | 0.730 |
| 135.0 | 25.3 | 134.8 | 2.550 | 29.230 | 2.510 | 1.050 | 8.600 | 0.890 |
| 150.0 | 25.4 | 149.7 | 2.090 | 17.670 | 2.400 | 0.780 | 5.310 | 0.840 |
| 165.0 | 25.6 | 164.7 | 2.220 | 15.110 | 2.810 | 0.840 | 2.970 | 0.990 |
| 180.0 | 25.6 | 179.8 | 3.290 | 19.890 | 3.460 | 1.030 | 2.330 | 1.070 |
| 195.0 | 25.6 | 195.0 | 2.400 | 22.430 | 2.950 | 0.860 | 3.340 | 1.000 |
| 210.0 | 25.4 | 210.0 | 2.000 | 25.870 | 2.230 | 0.680 | 5.390 | 0.770 |
| 225.0 | 25.4 | 225.0 | 2.600 | 33.550 | 2.130 | 0.900 | 7.580 | 0.710 |
| 240.0 | 25.4 | 240.2 | 3.440 | 37.460 | 2.540 | 1.130 | 10.960 | 0.750 |
| 255.0 | 25.4 | 255.3 | 4.630 | 31.340 | 2.030 | 1.290 | 7.790 | 0.540 |
| 270.0 | 25.4 | 270.2 | 4.740 | 23.990 | 1.120 | 1.370 | 6.280 | 0.270 |
| 285.0 | 25.4 | 285.1 | 5.460 | 22.160 | 2.520 | 1.430 | 5.020 | 0.750 |
| 300.0 | 25.4 | 299.9 | 5.100 | 17.610 | 4.070 | 1.440 | 3.430 | 1.170 |
| 315.0 | 25.4 | 314.8 | 4.460 | 15.010 | 4.370 | 1.410 | 2.300 | 1.380 |
| 330.0 | 25.3 | 329.8 | 4.930 | 12.480 | 5.210 | 1.380 | 1.580 | 1.500 |
| 345.0 | 25.3 | 344.8 | 5.060 | 10.620 | 5.440 | 1.350 | 1.090 | 1.540 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.28: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.5 | -0.0 | 4.920 | 11.410 | 5.030 | 1.430 | 1.260 | 1.510 |
| 15.0 | 30.5 | 15.0 | 5.690 | 12.060 | 5.380 | 1.430 | 1.630 | 1.490 |
| 30.0 | 30.4 | 30.1 | 5.170 | 13.710 | 4.740 | 1.430 | 2.250 | 1.450 |
| 45.0 | 30.4 | 45.1 | 5.170 | 15.840 | 4.450 | 1.440 | 3.030 | 1.350 |
| 60.0 | 30.4 | 60.0 | 5.030 | 18.610 | 3.790 | 1.420 | 3.810 | 1.160 |
| 75.0 | 30.5 | 74.9 | 4.970 | 17.370 | 2.630 | 1.350 | 3.450 | 0.790 |
| 90.0 | 30.5 | 89.8 | 4.380 | 19.640 | 1.140 | 1.220 | 4.570 | 0.290 |
| 105.0 | 30.5 | 104.8 | 4.070 | 26.040 | 1.440 | 1.130 | 6.550 | 0.400 |
| 120.0 | 30.3 | 119.9 | 3.270 | 36.540 | 2.740 | 1.110 | 12.860 | 0.720 |
| 135.0 | 30.4 | 134.8 | 2.830 | 28.670 | 2.760 | 0.910 | 8.950 | 0.830 |
| 150.0 | 30.7 | 149.7 | 2.410 | 19.490 | 2.780 | 0.940 | 5.570 | 0.980 |
| 165.0 | 31.0 | 164.7 | 3.150 | 20.870 | 3.530 | 0.850 | 3.300 | 1.020 |
| 180.0 | 30.6 | 179.7 | 3.240 | 22.890 | 4.110 | 0.880 | 3.250 | 1.100 |
| 195.0 | 31.0 | 195.0 | 3.290 | 23.880 | 3.230 | 0.860 | 3.980 | 0.990 |
| 210.0 | 30.7 | 210.2 | 3.040 | 28.050 | 3.450 | 0.950 | 6.100 | 0.960 |
| 225.0 | 30.4 | 225.2 | 3.020 | 35.490 | 2.870 | 1.020 | 9.180 | 0.900 |
| 240.0 | 30.4 | 240.2 | 3.470 | 41.410 | 3.130 | 1.100 | 12.340 | 0.760 |
| 255.0 | 30.5 | 255.2 | 4.570 | 40.360 | 2.020 | 1.250 | 7.630 | 0.530 |
| 270.0 | 30.5 | 270.1 | 4.890 | 24.790 | 1.180 | 1.330 | 5.920 | 0.310 |
| 285.0 | 30.5 | 285.1 | 5.260 | 21.740 | 2.660 | 1.430 | 4.880 | 0.750 |
| 300.0 | 30.5 | 299.9 | 5.800 | 18.340 | 4.020 | 1.470 | 3.210 | 1.140 |
| 315.0 | 30.5 | 314.9 | 5.210 | 15.470 | 4.500 | 1.470 | 2.310 | 1.340 |
| 330.0 | 30.5 | 329.9 | 4.930 | 12.840 | 4.500 | 1.450 | 1.680 | 1.440 |
| 345.0 | 30.4 | 344.9 | 5.270 | 13.260 | 5.540 | 1.440 | 1.440 | 1.490 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.29: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -0.9 | -27.2 | 8.650 | 31.440 | 8.090 | 1.340 | 6.780 | 2.530 |
| 15.0 | -1.4 | -21.1 | 5.100 | 25.080 | 8.540 | 1.290 | 6.930 | 2.550 |
| 30.0 | -3.4 | 33.0 | 6.650 | 54.860 | 8.320 | 1.490 | 9.930 | 2.180 |
| 45.0 | -4.5 | -99.2 | 6.840 | 51.120 | 8.260 | 1.570 | 9.850 | 2.010 |
| 60.0 | -5.1 | -111.1 | 6.010 | 90.410 | 8.860 | 1.680 | 9.940 | 1.840 |
| 75.0 | -0.6 | -51.8 | 7.090 | 63.370 | 10.500 | 1.730 | 11.420 | 1.650 |
| 90.0 | 0.2 | 7.1 | 8.150 | 63.260 | 6.560 | 1.650 | 11.580 | 1.840 |
| 105.0 | 0.4 | 50.3 | 6.200 | 62.430 | 6.980 | 1.680 | 10.540 | 1.770 |
| 120.0 | -0.6 | 93.8 | 8.010 | 53.430 | 5.950 | 1.810 | 10.500 | 1.210 |
| 135.0 | -3.6 | 82.6 | 7.070 | 59.410 | 9.330 | 1.710 | 11.070 | 1.700 |
| 150.0 | -3.7 | 46.3 | 7.250 | 52.430 | 8.800 | 1.550 | 10.540 | 2.130 |
| 165.0 | -2.8 | 41.1 | 6.790 | 35.440 | 10.410 | 1.450 | 9.090 | 2.300 |
| 180.0 | -1.1 | 19.7 | 6.930 | 45.600 | 9.430 | 1.380 | 7.800 | 2.490 |
| 195.0 | -0.6 | 31.3 | 6.090 | 29.050 | 8.990 | 1.490 | 7.610 | 2.470 |
| 210.0 | 0.3 | 36.8 | 6.580 | 27.040 | 7.410 | 1.540 | 7.820 | 2.430 |
| 225.0 | 0.9 | 387.4 | 8.460 | 33.420 | 7.570 | 1.700 | 8.620 | 2.210 |
| 240.0 | 0.8 | 281.2 | 8.690 | 54.130 | 8.110 | 2.050 | 9.820 | 1.350 |
| 255.0 | 0.6 | 284.9 | 7.900 | 46.490 | 8.680 | 2.020 | 9.620 | 1.510 |
| 270.0 | -2.0 | 276.9 | 5.260 | 38.590 | 10.580 | 1.900 | 11.590 | 1.950 |
| 285.0 | 0.2 | 292.5 | 7.380 | 33.400 | 7.040 | 1.900 | 8.950 | 1.920 |
| 300.0 | -0.9 | -202.8 | 10.930 | 75.140 | 18.900 | 1.850 | 10.270 | 2.190 |
| 315.0 | 0.3 | 306.3 | 7.640 | 31.160 | 7.660 | 1.660 | 8.120 | 2.350 |
| 330.0 | 0.4 | 314.6 | 6.990 | 29.810 | 7.800 | 1.520 | 7.560 | 2.480 |
| 345.0 | 0.0 | 322.0 | 6.020 | 27.780 | 8.560 | 1.420 | 6.900 | 2.520 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.30: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 3.6 | -26.8 | 4.600 | 24.470 | 8.530 | 1.290 | 5.980 | 2.620 |
| 15.0 | 3.5 | -19.4 | 4.400 | 21.400 | 8.870 | 1.220 | 5.610 | 2.620 |
| 30.0 | 3.3 | -13.2 | 4.150 | 19.090 | 8.410 | 1.160 | 5.140 | 2.620 |
| 45.0 | 3.0 | -8.2 | 4.380 | 21.440 | 9.030 | 1.170 | 5.480 | 2.620 |
| 60.0 | 2.9 | 2.2 | 3.890 | 23.550 | 8.910 | 1.170 | 5.880 | 2.580 |
| 75.0 | 2.7 | 8.1 | 4.280 | 31.500 | 8.500 | 1.220 | 6.830 | 2.560 |
| 90.0 | 2.9 | 14.0 | 5.160 | 62.790 | 8.650 | 1.300 | 7.820 | 2.470 |
| 105.0 | 3.1 | 24.7 | 5.300 | 50.130 | 8.740 | 1.340 | 7.610 | 2.400 |
| 120.0 | 3.1 | 21.7 | 5.800 | 60.450 | 8.500 | 1.250 | 6.720 | 2.500 |
| 135.0 | 3.1 | 26.2 | 5.320 | 57.830 | 8.670 | 1.270 | 6.480 | 2.510 |
| 150.0 | 3.2 | 33.4 | 4.220 | 26.870 | 8.240 | 1.310 | 6.620 | 2.520 |
| 165.0 | 3.3 | 38.7 | 4.330 | 24.170 | 8.780 | 1.350 | 6.820 | 2.530 |
| 180.0 | 3.9 | 146.8 | 6.830 | 27.870 | 7.000 | 1.170 | 7.410 | 2.140 |
| 195.0 | 3.7 | 23.7 | 4.860 | 25.290 | 8.170 | 1.400 | 7.260 | 2.540 |
| 210.0 | 3.8 | 388.6 | 5.900 | 27.870 | 8.880 | 1.490 | 7.740 | 2.480 |
| 225.0 | 4.2 | 359.3 | 7.370 | 31.070 | 7.500 | 1.680 | 8.530 | 2.220 |
| 240.0 | 4.4 | 283.9 | 8.460 | 50.130 | 5.910 | 2.030 | 8.780 | 1.430 |
| 255.0 | 4.1 | 286.1 | 8.260 | 67.470 | 15.360 | 2.030 | 9.340 | 1.630 |
| 270.0 | 4.0 | 291.3 | 7.300 | 59.360 | 8.840 | 1.940 | 8.370 | 1.870 |
| 285.0 | 4.2 | 295.7 | 7.490 | 43.030 | 6.680 | 1.870 | 7.750 | 2.060 |
| 300.0 | 4.4 | 301.0 | 6.380 | 28.950 | 9.180 | 1.760 | 7.280 | 2.270 |
| 315.0 | 4.3 | 310.6 | 5.860 | 29.010 | 7.200 | 1.590 | 7.140 | 2.460 |
| 330.0 | 4.1 | 318.7 | 5.430 | 27.060 | 7.550 | 1.450 | 6.580 | 2.550 |
| 345.0 | 3.8 | 324.2 | 5.430 | 27.090 | 7.800 | 1.390 | 6.690 | 2.590 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.31: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 8.8 | -5.3 | 4.120 | 22.170 | 8.630 | 1.220 | 3.930 | 2.570 |
| 15.0 | 8.4 | 6.8 | 4.380 | 20.620 | 8.790 | 1.210 | 4.290 | 2.560 |
| 30.0 | 8.0 | 16.1 | 4.710 | 21.540 | 8.380 | 1.230 | 4.840 | 2.550 |
| 45.0 | 8.0 | 30.6 | 4.840 | 26.690 | 7.540 | 1.340 | 5.360 | 2.500 |
| 60.0 | 8.4 | 49.7 | 5.500 | 25.650 | 7.280 | 1.550 | 6.270 | 2.330 |
| 75.0 | 8.3 | 59.0 | 6.050 | 54.240 | 6.490 | 1.670 | 6.590 | 2.110 |
| 90.0 | 8.6 | 73.9 | 7.270 | 38.280 | 5.580 | 1.840 | 7.580 | 1.500 |
| 105.0 | 8.5 | 82.1 | 7.590 | 55.350 | 4.350 | 1.880 | 8.990 | 0.940 |
| 120.0 | 8.3 | 92.0 | 8.780 | 44.770 | 4.760 | 1.850 | 9.820 | 0.830 |
| 135.0 | 8.1 | 99.6 | 7.380 | 41.630 | 5.350 | 1.800 | 9.930 | 0.990 |
| 150.0 | 8.1 | 87.4 | 7.690 | 60.730 | 5.530 | 1.760 | 8.610 | 1.610 |
| 165.0 | 8.1 | 125.9 | 6.320 | 28.610 | 6.720 | 1.350 | 8.240 | 1.810 |
| 180.0 | 9.1 | 174.8 | 2.890 | 26.410 | 5.020 | 1.010 | 7.130 | 1.790 |
| 195.0 | 9.6 | 195.2 | 3.160 | 22.970 | 5.490 | 1.050 | 6.120 | 1.830 |
| 210.0 | 8.5 | 274.0 | 8.870 | 59.280 | 5.850 | 1.990 | 9.520 | 1.100 |
| 225.0 | 8.3 | 275.4 | 9.570 | 47.440 | 5.700 | 2.030 | 9.490 | 1.090 |
| 240.0 | 8.3 | 276.6 | 8.550 | 46.150 | 5.720 | 2.060 | 9.600 | 1.040 |
| 255.0 | 8.4 | 280.1 | 7.550 | 48.590 | 5.740 | 2.070 | 8.680 | 1.180 |
| 270.0 | 8.5 | 283.8 | 8.830 | 44.930 | 6.170 | 2.070 | 8.180 | 1.390 |
| 285.0 | 9.4 | 289.4 | 7.380 | 31.140 | 7.750 | 2.000 | 7.410 | 1.760 |
| 300.0 | 9.7 | 300.2 | 6.920 | 30.810 | 7.220 | 1.830 | 6.440 | 2.220 |
| 315.0 | 9.5 | 313.0 | 5.610 | 28.710 | 8.150 | 1.610 | 6.120 | 2.470 |
| 330.0 | 9.3 | 327.3 | 5.220 | 25.570 | 8.460 | 1.420 | 4.790 | 2.570 |
| 345.0 | 9.1 | 341.2 | 4.500 | 24.110 | 8.660 | 1.290 | 4.440 | 2.590 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.32: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 14.7 | -1.3 | 4.500 | 16.190 | 7.120 | 1.400 | 2.970 | 2.470 |
| 15.0 | 14.7 | 13.8 | 4.650 | 17.020 | 7.620 | 1.410 | 3.130 | 2.460 |
| 30.0 | 14.6 | 29.0 | 5.170 | 21.170 | 7.290 | 1.480 | 3.760 | 2.440 |
| 45.0 | 14.7 | 44.2 | 5.670 | 22.680 | 7.160 | 1.610 | 4.370 | 2.360 |
| 60.0 | 14.8 | 58.9 | 6.820 | 29.900 | 6.730 | 1.770 | 5.170 | 2.120 |
| 75.0 | 14.6 | 71.8 | 7.110 | 40.470 | 5.880 | 1.860 | 6.170 | 1.630 |
| 90.0 | 14.4 | 86.4 | 7.600 | 34.950 | 3.750 | 1.890 | 8.460 | 0.600 |
| 105.0 | 14.4 | 101.2 | 7.260 | 41.400 | 3.190 | 1.740 | 9.850 | 0.780 |
| 120.0 | 14.2 | 115.1 | 6.140 | 38.010 | 5.930 | 1.500 | 9.800 | 1.220 |
| 135.0 | 14.4 | 130.4 | 6.170 | 53.600 | 5.360 | 1.290 | 10.010 | 1.410 |
| 150.0 | 14.8 | 148.0 | 3.680 | 27.000 | 5.040 | 1.070 | 7.420 | 1.420 |
| 165.0 | 14.7 | 162.9 | 3.180 | 26.930 | 4.530 | 0.990 | 5.650 | 1.440 |
| 180.0 | 14.6 | 178.3 | 2.490 | 26.360 | 3.830 | 0.910 | 5.190 | 1.420 |
| 195.0 | 14.8 | 193.9 | 3.080 | 28.470 | 4.480 | 0.990 | 6.140 | 1.520 |
| 210.0 | 14.8 | 209.8 | 2.940 | 31.610 | 5.090 | 1.110 | 7.970 | 1.610 |
| 225.0 | 14.1 | 234.1 | 7.660 | 61.040 | 7.150 | 1.480 | 11.410 | 1.550 |
| 240.0 | 13.4 | 253.5 | 7.240 | 40.390 | 4.840 | 1.830 | 11.000 | 1.240 |
| 255.0 | 13.3 | 265.5 | 8.710 | 46.100 | 3.950 | 1.980 | 10.600 | 0.810 |
| 270.0 | 13.9 | 276.0 | 8.560 | 39.340 | 4.560 | 2.090 | 9.330 | 0.780 |
| 285.0 | 14.8 | 287.1 | 6.850 | 26.480 | 6.590 | 2.070 | 7.290 | 1.610 |
| 300.0 | 15.0 | 299.9 | 6.460 | 29.080 | 7.510 | 1.910 | 5.900 | 2.160 |
| 315.0 | 14.8 | 314.0 | 5.750 | 29.740 | 7.700 | 1.720 | 5.130 | 2.400 |
| 330.0 | 14.7 | 328.7 | 5.770 | 24.770 | 7.850 | 1.560 | 4.240 | 2.490 |
| 345.0 | 14.7 | 343.6 | 5.000 | 20.590 | 7.610 | 1.440 | 3.360 | 2.480 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.33: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.0 | -0.6 | 5.340 | 15.010 | 7.500 | 1.580 | 2.620 | 2.350 |
| 15.0 | 20.0 | 14.6 | 5.710 | 17.330 | 7.610 | 1.590 | 2.790 | 2.350 |
| 30.0 | 20.0 | 29.8 | 5.830 | 20.600 | 6.740 | 1.650 | 3.380 | 2.340 |
| 45.0 | 20.0 | 44.8 | 5.980 | 25.950 | 6.950 | 1.750 | 4.030 | 2.260 |
| 60.0 | 20.0 | 59.5 | 6.790 | 27.020 | 6.440 | 1.860 | 4.600 | 2.050 |
| 75.0 | 20.1 | 73.8 | 7.920 | 30.230 | 5.200 | 1.920 | 5.810 | 1.530 |
| 90.0 | 19.8 | 88.0 | 7.520 | 34.910 | 3.180 | 1.850 | 8.320 | 0.530 |
| 105.0 | 19.9 | 103.3 | 6.330 | 41.150 | 3.480 | 1.660 | 10.360 | 0.790 |
| 120.0 | 19.9 | 118.3 | 4.530 | 37.970 | 5.150 | 1.410 | 11.760 | 1.100 |
| 135.0 | 19.7 | 133.8 | 4.300 | 41.890 | 5.040 | 1.210 | 11.610 | 1.320 |
| 150.0 | 19.6 | 148.5 | 5.720 | 41.340 | 6.100 | 1.150 | 8.910 | 1.560 |
| 165.0 | 19.9 | 163.9 | 2.930 | 27.730 | 4.300 | 1.090 | 5.780 | 1.490 |
| 180.0 | 20.3 | 179.2 | 3.000 | 28.290 | 4.660 | 0.970 | 4.620 | 1.380 |
| 195.0 | 20.0 | 194.7 | 3.020 | 31.890 | 4.480 | 1.120 | 6.930 | 1.580 |
| 210.0 | 19.8 | 211.0 | 4.690 | 39.430 | 5.200 | 1.140 | 10.290 | 1.610 |
| 225.0 | 19.6 | 228.0 | 7.450 | 45.600 | 4.620 | 1.230 | 12.500 | 1.360 |
| 240.0 | 19.5 | 244.4 | 7.270 | 38.010 | 4.920 | 1.570 | 13.530 | 1.220 |
| 255.0 | 19.2 | 259.4 | 8.430 | 41.990 | 3.640 | 1.870 | 12.010 | 0.900 |
| 270.0 | 19.4 | 273.3 | 7.220 | 42.330 | 4.400 | 2.050 | 10.320 | 0.640 |
| 285.0 | 20.1 | 286.3 | 7.110 | 29.530 | 5.350 | 2.100 | 7.470 | 1.530 |
| 300.0 | 20.1 | 300.0 | 6.400 | 24.620 | 6.610 | 1.990 | 5.620 | 2.080 |
| 315.0 | 20.1 | 314.4 | 5.540 | 20.470 | 6.430 | 1.840 | 4.640 | 2.300 |
| 330.0 | 20.1 | 329.3 | 6.020 | 19.870 | 7.370 | 1.710 | 3.910 | 2.370 |
| 345.0 | 20.0 | 344.3 | 6.000 | 16.230 | 7.490 | 1.620 | 3.110 | 2.360 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.34: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.3 | -0.2 | 5.570 | 15.380 | 6.610 | 1.730 | 2.540 | 2.220 |
| 15.0 | 25.3 | 14.9 | 5.560 | 17.210 | 6.800 | 1.740 | 2.800 | 2.230 |
| 30.0 | 25.2 | 30.0 | 6.100 | 24.540 | 6.740 | 1.800 | 3.300 | 2.230 |
| 45.0 | 25.2 | 44.9 | 6.240 | 24.700 | 7.090 | 1.870 | 3.790 | 2.170 |
| 60.0 | 25.2 | 59.7 | 6.200 | 27.420 | 5.820 | 1.940 | 4.420 | 1.980 |
| 75.0 | 25.2 | 74.1 | 6.750 | 28.430 | 4.880 | 1.950 | 5.540 | 1.490 |
| 90.0 | 25.0 | 88.7 | 7.950 | 38.640 | 3.850 | 1.810 | 8.380 | 0.520 |
| 105.0 | 25.0 | 104.4 | 6.590 | 39.020 | 4.180 | 1.580 | 12.200 | 0.780 |
| 120.0 | 24.7 | 118.5 | 6.730 | 48.510 | 4.670 | 1.390 | 15.910 | 1.110 |
| 135.0 | 24.6 | 132.1 | 7.990 | 42.360 | 4.240 | 1.200 | 13.060 | 1.230 |
| 150.0 | 24.8 | 149.1 | 2.760 | 38.920 | 4.670 | 1.060 | 9.190 | 1.400 |
| 165.0 | 25.7 | 164.1 | 3.390 | 28.730 | 4.770 | 0.960 | 5.580 | 1.380 |
| 180.0 | 26.4 | 179.6 | 5.170 | 29.190 | 7.620 | 0.940 | 3.700 | 1.390 |
| 195.0 | 25.8 | 194.9 | 3.520 | 30.900 | 5.400 | 0.960 | 6.340 | 1.370 |
| 210.0 | 25.0 | 210.7 | 4.900 | 36.730 | 5.850 | 1.230 | 10.370 | 1.600 |
| 225.0 | 24.7 | 226.5 | 4.630 | 49.030 | 4.150 | 1.200 | 14.030 | 1.350 |
| 240.0 | 24.6 | 242.1 | 7.170 | 43.360 | 5.240 | 1.410 | 16.720 | 1.200 |
| 255.0 | 24.7 | 257.1 | 7.140 | 40.590 | 3.480 | 1.770 | 13.230 | 0.910 |
| 270.0 | 24.9 | 271.9 | 8.060 | 39.120 | 3.700 | 2.020 | 10.610 | 0.570 |
| 285.0 | 25.2 | 286.0 | 8.120 | 33.240 | 5.000 | 2.110 | 7.870 | 1.480 |
| 300.0 | 25.3 | 300.1 | 6.810 | 24.170 | 6.290 | 2.070 | 5.970 | 2.000 |
| 315.0 | 25.3 | 314.7 | 6.850 | 20.590 | 6.940 | 1.950 | 4.620 | 2.200 |
| 330.0 | 25.3 | 329.7 | 5.800 | 18.550 | 7.020 | 1.840 | 3.880 | 2.240 |
| 345.0 | 25.3 | 344.7 | 5.770 | 15.400 | 6.750 | 1.770 | 2.870 | 2.240 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.35: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.4 | 0.0 | 5.810 | 17.390 | 6.750 | 1.840 | 2.470 | 2.100 |
| 15.0 | 30.4 | 15.1 | 5.670 | 19.730 | 6.700 | 1.860 | 2.830 | 2.120 |
| 30.0 | 30.4 | 30.1 | 5.710 | 25.020 | 5.950 | 1.910 | 3.480 | 2.130 |
| 45.0 | 30.4 | 45.0 | 6.390 | 27.270 | 6.260 | 1.980 | 3.970 | 2.090 |
| 60.0 | 30.3 | 59.7 | 6.180 | 26.490 | 5.520 | 2.010 | 4.240 | 1.920 |
| 75.0 | 30.3 | 74.3 | 7.570 | 35.630 | 5.440 | 1.970 | 5.650 | 1.450 |
| 90.0 | 30.1 | 89.0 | 7.690 | 37.160 | 3.350 | 1.770 | 8.930 | 0.540 |
| 105.0 | 30.0 | 104.3 | 7.610 | 59.660 | 6.360 | 1.510 | 14.440 | 0.820 |
| 120.0 | 29.7 | 118.6 | 5.350 | 47.440 | 5.300 | 1.200 | 16.120 | 0.970 |
| 135.0 | 29.9 | 134.1 | 3.810 | 44.070 | 5.150 | 1.260 | 13.060 | 1.460 |
| 150.0 | 30.5 | 147.4 | 4.480 | 44.480 | 5.340 | 1.120 | 9.190 | 1.450 |
| 165.0 | 31.0 | 162.7 | 3.330 | 38.130 | 5.300 | 0.920 | 6.800 | 1.370 |
| 180.0 | 31.1 | 178.6 | 3.240 | 38.340 | 5.570 | 0.870 | 6.730 | 1.410 |
| 195.0 | 31.4 | 194.6 | 5.880 | 38.550 | 7.340 | 0.930 | 7.700 | 1.480 |
| 210.0 | 30.8 | 211.0 | 5.580 | 38.790 | 7.700 | 1.080 | 10.470 | 1.550 |
| 225.0 | 29.7 | 226.0 | 5.530 | 54.110 | 5.590 | 1.390 | 14.320 | 1.630 |
| 240.0 | 29.8 | 240.9 | 4.920 | 50.320 | 3.950 | 1.290 | 17.850 | 1.130 |
| 255.0 | 29.9 | 256.1 | 9.430 | 60.340 | 6.000 | 1.650 | 14.420 | 1.010 |
| 270.0 | 30.1 | 271.2 | 8.170 | 46.350 | 3.390 | 1.960 | 10.960 | 0.600 |
| 285.0 | 30.3 | 285.7 | 7.750 | 33.090 | 4.540 | 2.130 | 8.410 | 1.450 |
| 300.0 | 30.4 | 300.1 | 6.880 | 24.930 | 6.130 | 2.130 | 6.410 | 1.930 |
| 315.0 | 30.4 | 315.0 | 6.720 | 20.880 | 6.490 | 2.050 | 5.310 | 2.090 |
| 330.0 | 30.4 | 329.9 | 5.890 | 20.370 | 6.330 | 1.950 | 3.990 | 2.120 |
| 345.0 | 30.4 | 345.0 | 5.720 | 17.430 | 6.520 | 1.870 | 2.980 | 2.110 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.36: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | -1.5 | -109.1 | 6.420 | 23.830 | 7.110 | 1.890 | 8.030 | 1.970 |
| 15.0 | -2.4 | -147.9 | 6.040 | 22.110 | 6.730 | 1.860 | 5.780 | 1.870 |
| 30.0 | -1.8 | -69.5 | 5.700 | 25.950 | 8.950 | 1.890 | 9.120 | 1.870 |
| 45.0 | -0.2 | 21.9 | 5.950 | 22.740 | 7.620 | 1.850 | 5.530 | 1.960 |
| 60.0 | 0.6 | 49.0 | 6.690 | 23.410 | 5.970 | 1.950 | 6.600 | 1.580 |
| 75.0 | 0.7 | 69.2 | 6.790 | 24.530 | 4.940 | 2.040 | 6.960 | 0.990 |
| 90.0 | 0.1 | 90.9 | 7.780 | 25.710 | 2.030 | 2.110 | 7.450 | 0.360 |
| 105.0 | -0.5 | 103.2 | 7.190 | 27.040 | 3.280 | 2.080 | 7.720 | 0.690 |
| 120.0 | -1.4 | 113.0 | 8.080 | 32.410 | 4.370 | 2.060 | 7.750 | 1.030 |
| 135.0 | -2.1 | 121.6 | 6.430 | 29.060 | 4.460 | 2.010 | 7.410 | 1.310 |
| 150.0 | -2.6 | 131.7 | 6.850 | 26.690 | 4.950 | 1.960 | 6.740 | 1.570 |
| 165.0 | -2.5 | 144.3 | 6.190 | 21.860 | 5.950 | 1.890 | 5.500 | 1.790 |
| 180.0 | -1.7 | 164.5 | 6.030 | 16.640 | 6.910 | 1.820 | 3.000 | 1.980 |
| 195.0 | 0.4 | 236.4 | 7.160 | 23.880 | 5.880 | 2.080 | 7.000 | 1.480 |
| 210.0 | 0.0 | 244.9 | 7.070 | 26.380 | 5.380 | 2.150 | 7.230 | 1.260 |
| 225.0 | -0.2 | 253.3 | 7.530 | 26.040 | 4.370 | 2.210 | 7.380 | 0.970 |
| 240.0 | -0.4 | 261.6 | 7.990 | 25.450 | 3.250 | 2.260 | 7.350 | 0.640 |
| 255.0 | -0.6 | 270.4 | 8.240 | 25.800 | 2.190 | 2.280 | 7.220 | 0.400 |
| 270.0 | -0.6 | 279.9 | 7.420 | 27.070 | 3.120 | 2.270 | 7.020 | 0.570 |
| 285.0 | -0.5 | 288.9 | 8.200 | 25.540 | 4.460 | 2.230 | 6.750 | 0.930 |
| 300.0 | -0.5 | 297.9 | 7.040 | 25.110 | 5.280 | 2.180 | 6.430 | 1.260 |
| 315.0 | -0.4 | 307.0 | 6.960 | 23.830 | 5.390 | 2.110 | 6.090 | 1.540 |
| 330.0 | -0.6 | 315.5 | 6.990 | 22.640 | 5.940 | 2.060 | 5.840 | 1.750 |
| 345.0 | -0.8 | 324.3 | 6.620 | 21.500 | 6.280 | 2.000 | 5.600 | 1.880 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.37: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 3.8 | -29.6 | 6.450 | 24.060 | 6.710 | 1.950 | 5.720 | 1.990 |
| 15.0 | 3.6 | -22.7 | 6.500 | 22.360 | 7.810 | 1.910 | 5.570 | 2.050 |
| 30.0 | 3.5 | -14.4 | 6.310 | 21.610 | 7.630 | 1.880 | 5.190 | 2.080 |
| 45.0 | 3.5 | -3.6 | 6.190 | 22.790 | 7.910 | 1.840 | 4.840 | 2.100 |
| 60.0 | 3.8 | 26.6 | 7.310 | 24.390 | 6.830 | 1.850 | 5.260 | 1.950 |
| 75.0 | 4.3 | 58.4 | 6.610 | 24.990 | 5.320 | 1.990 | 6.280 | 1.360 |
| 90.0 | 4.5 | 79.9 | 6.420 | 25.360 | 3.290 | 2.080 | 6.620 | 0.570 |
| 105.0 | 4.4 | 95.6 | 7.170 | 26.520 | 1.800 | 2.080 | 7.040 | 0.340 |
| 120.0 | 4.1 | 107.0 | 8.020 | 30.300 | 2.790 | 2.050 | 7.130 | 0.730 |
| 135.0 | 3.8 | 115.4 | 7.120 | 27.710 | 3.990 | 2.010 | 7.070 | 1.020 |
| 150.0 | 3.5 | 124.8 | 7.090 | 27.830 | 4.590 | 1.960 | 6.770 | 1.280 |
| 165.0 | 3.4 | 134.5 | 6.670 | 27.880 | 6.150 | 1.910 | 6.210 | 1.490 |
| 180.0 | 3.3 | 146.5 | 6.080 | 24.760 | 6.420 | 1.860 | 5.340 | 1.670 |
| 195.0 | 3.4 | 162.2 | 6.770 | 23.050 | 6.210 | 1.820 | 4.600 | 1.800 |
| 210.0 | 4.4 | 216.2 | 6.420 | 20.690 | 5.890 | 1.930 | 5.600 | 1.730 |
| 225.0 | 4.3 | 237.0 | 7.600 | 23.760 | 4.860 | 2.090 | 6.570 | 1.380 |
| 240.0 | 4.4 | 250.4 | 7.100 | 25.820 | 3.880 | 2.170 | 7.010 | 0.990 |
| 255.0 | 4.5 | 262.4 | 7.280 | 24.000 | 2.190 | 2.240 | 7.180 | 0.520 |
| 270.0 | 4.6 | 274.8 | 8.320 | 24.250 | 1.740 | 2.260 | 6.990 | 0.280 |
| 285.0 | 4.7 | 287.5 | 9.530 | 26.370 | 3.000 | 2.230 | 6.690 | 0.820 |
| 300.0 | 4.7 | 299.8 | 7.260 | 25.640 | 4.240 | 2.150 | 6.190 | 1.320 |
| 315.0 | 4.5 | 310.0 | 7.730 | 25.420 | 5.480 | 2.090 | 6.050 | 1.620 |
| 330.0 | 4.1 | 317.1 | 6.940 | 24.480 | 5.820 | 2.040 | 6.010 | 1.790 |
| 345.0 | 3.9 | 323.5 | 6.620 | 25.080 | 6.370 | 2.000 | 5.910 | 1.900 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.38: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 9.4 | -3.6 | 6.400 | 21.210 | 7.030 | 1.850 | 3.260 | 2.120 |
| 15.0 | 9.5 | 11.9 | 6.500 | 18.480 | 7.180 | 1.850 | 3.480 | 2.100 |
| 30.0 | 9.6 | 27.4 | 6.060 | 21.010 | 6.820 | 1.880 | 4.120 | 1.990 |
| 45.0 | 9.7 | 42.7 | 7.330 | 22.600 | 6.060 | 1.930 | 4.710 | 1.770 |
| 60.0 | 9.8 | 57.5 | 6.830 | 22.450 | 4.600 | 1.990 | 5.030 | 1.410 |
| 75.0 | 9.9 | 72.9 | 7.250 | 24.510 | 2.980 | 2.060 | 5.340 | 0.870 |
| 90.0 | 9.9 | 88.0 | 6.760 | 25.070 | 1.140 | 2.070 | 5.870 | 0.230 |
| 105.0 | 9.9 | 103.1 | 7.340 | 27.740 | 1.850 | 2.040 | 6.310 | 0.500 |
| 120.0 | 9.5 | 116.4 | 7.000 | 29.390 | 3.020 | 1.960 | 5.890 | 0.930 |
| 135.0 | 9.2 | 130.3 | 6.870 | 27.670 | 4.690 | 1.900 | 5.170 | 1.240 |
| 150.0 | 9.1 | 144.4 | 6.410 | 25.910 | 5.120 | 1.810 | 4.820 | 1.440 |
| 165.0 | 9.0 | 159.4 | 6.100 | 21.800 | 5.280 | 1.780 | 5.080 | 1.620 |
| 180.0 | 9.4 | 176.8 | 5.880 | 22.670 | 5.570 | 1.760 | 5.090 | 1.690 |
| 195.0 | 9.7 | 193.7 | 6.160 | 21.690 | 5.750 | 1.810 | 4.990 | 1.700 |
| 210.0 | 9.6 | 211.3 | 6.500 | 22.050 | 5.810 | 1.860 | 5.730 | 1.590 |
| 225.0 | 9.5 | 228.4 | 6.990 | 26.440 | 5.210 | 1.990 | 7.060 | 1.420 |
| 240.0 | 9.5 | 243.7 | 7.730 | 25.070 | 3.740 | 2.100 | 7.620 | 1.090 |
| 255.0 | 9.8 | 257.4 | 8.500 | 25.280 | 2.540 | 2.190 | 7.780 | 0.630 |
| 270.0 | 9.9 | 271.7 | 8.200 | 26.120 | 1.130 | 2.230 | 7.670 | 0.210 |
| 285.0 | 10.0 | 285.8 | 7.800 | 27.610 | 3.050 | 2.210 | 7.020 | 0.750 |
| 300.0 | 9.9 | 300.0 | 7.160 | 24.290 | 4.080 | 2.160 | 6.060 | 1.330 |
| 315.0 | 9.8 | 313.7 | 7.190 | 25.320 | 5.260 | 2.050 | 5.170 | 1.710 |
| 330.0 | 9.6 | 327.5 | 6.930 | 24.440 | 6.270 | 1.960 | 4.430 | 1.940 |
| 345.0 | 9.4 | 341.6 | 6.620 | 21.960 | 6.610 | 1.900 | 4.010 | 2.080 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.39: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|---------------------|---------------------|-------------------------|--------------------|---------------------|---------------------------|--------------------|---------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 14.9 | -1.1 | 7.000 | 17.610 | 7.110 | 1.910 | 2.490 | 2.090 |
| 15.0 | 14.9 | 14.1 | 7.520 | 18.640 | 7.340 | 1.890 | 3.070 | 2.060 |
| 30.0 | 14.9 | 29.2 | 7.130 | 21.010 | 6.640 | 1.920 | 3.760 | 1.950 |
| 45.0 | 15.0 | 44.2 | 7.340 | 21.540 | 6.150 | 1.960 | 4.190 | 1.730 |
| 60.0 | 15.0 | 59.0 | 8.470 | 23.160 | 5.260 | 1.990 | 4.610 | 1.370 |
| 75.0 | 15.1 | 74.0 | 7.230 | 23.430 | 3.200 | 2.020 | 4.720 | 0.850 |
| 90.0 | 15.1 | 89.0 | 7.230 | 25.350 | 1.120 | 2.020 | 5.440 | 0.270 |
| 105.0 | 15.1 | 104.1 | 7.000 | 27.530 | 1.850 | 1.980 | 6.090 | 0.500 |
| 120.0 | 14.9 | 118.3 | 7.550 | 29.840 | 3.300 | 1.900 | 6.290 | 0.870 |
| 135.0 | 14.9 | 133.5 | 6.400 | 27.380 | 4.070 | 1.820 | 6.320 | 1.170 |
| 150.0 | 14.9 | 148.6 | 5.190 | 23.290 | 4.680 | 1.760 | 4.980 | 1.350 |
| 165.0 | 15.0 | 163.8 | 4.870 | 21.010 | 4.560 | 1.730 | 3.260 | 1.430 |
| 180.0 | 14.9 | 178.9 | 4.850 | 21.190 | 5.050 | 1.730 | 4.030 | 1.590 |
| 195.0 | 15.0 | 194.3 | 5.040 | 26.470 | 4.520 | 1.760 | 4.540 | 1.500 |
| 210.0 | 15.0 | 209.9 | 5.400 | 27.640 | 4.720 | 1.830 | 6.800 | 1.490 |
| 225.0 | 14.8 | 226.2 | 6.410 | 25.730 | 3.870 | 1.900 | 8.750 | 1.320 |
| 240.0 | 14.9 | 241.8 | 7.400 | 25.700 | 3.640 | 2.030 | 9.390 | 1.030 |
| 255.0 | 15.1 | 256.1 | 7.850 | 29.170 | 2.480 | 2.130 | 9.120 | 0.630 |
| 270.0 | 15.1 | 270.8 | 7.860 | 29.630 | 1.590 | 2.190 | 8.650 | 0.250 |
| 285.0 | 15.2 | 285.4 | 7.930 | 31.210 | 2.610 | 2.190 | 8.040 | 0.740 |
| 300.0 | 15.1 | 299.9 | 7.060 | 25.550 | 4.490 | 2.150 | 6.300 | 1.310 |
| 315.0 | 15.0 | 314.3 | 8.360 | 25.170 | 6.390 | 2.070 | 4.980 | 1.700 |
| 330.0 | 14.9 | 328.9 | 7.610 | 21.030 | 6.460 | 1.990 | 3.800 | 1.930 |
| 345.0 | 14.9 | 343.8 | 7.270 | 20.630 | 7.310 | 1.930 | 2.830 | 2.050 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.40: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 20.1 | -0.5 | 6.740 | 17.430 | 6.910 | 1.960 | 2.490 | 2.030 |
| 15.0 | 20.1 | 14.7 | 6.320 | 17.890 | 6.480 | 1.960 | 3.190 | 2.010 |
| 30.0 | 20.1 | 29.8 | 6.490 | 19.270 | 6.150 | 1.970 | 4.050 | 1.910 |
| 45.0 | 20.1 | 44.8 | 7.730 | 21.050 | 5.850 | 1.990 | 4.570 | 1.700 |
| 60.0 | 20.2 | 59.6 | 7.300 | 22.760 | 4.300 | 2.000 | 5.170 | 1.360 |
| 75.0 | 20.2 | 74.4 | 6.870 | 23.030 | 2.920 | 1.990 | 4.810 | 0.870 |
| 90.0 | 20.3 | 89.4 | 7.090 | 24.820 | 1.250 | 1.970 | 5.460 | 0.330 |
| 105.0 | 20.3 | 104.5 | 6.520 | 30.020 | 1.670 | 1.930 | 6.040 | 0.490 |
| 120.0 | 20.1 | 119.2 | 6.180 | 30.050 | 2.600 | 1.850 | 8.540 | 0.840 |
| 135.0 | 20.1 | 134.3 | 5.320 | 28.670 | 3.330 | 1.770 | 6.820 | 1.090 |
| 150.0 | 20.2 | 149.3 | 4.820 | 22.120 | 3.730 | 1.660 | 4.110 | 1.150 |
| 165.0 | 20.1 | 164.3 | 5.360 | 18.690 | 4.840 | 1.870 | 3.440 | 1.680 |
| 180.0 | 20.3 | 179.4 | 5.190 | 21.820 | 4.080 | 1.650 | 3.140 | 1.290 |
| 195.0 | 20.2 | 194.8 | 5.270 | 34.240 | 4.700 | 1.860 | 5.880 | 1.640 |
| 210.0 | 20.1 | 210.0 | 5.360 | 38.520 | 4.710 | 1.830 | 7.930 | 1.480 |
| 225.0 | 20.1 | 225.1 | 5.510 | 35.910 | 4.130 | 1.830 | 9.660 | 1.240 |
| 240.0 | 20.1 | 240.8 | 7.100 | 34.080 | 3.240 | 1.960 | 11.070 | 1.000 |
| 255.0 | 20.2 | 255.5 | 8.020 | 33.580 | 2.160 | 2.070 | 10.000 | 0.620 |
| 270.0 | 20.3 | 270.4 | 7.350 | 35.170 | 1.440 | 2.150 | 9.520 | 0.300 |
| 285.0 | 20.3 | 285.2 | 7.460 | 31.450 | 2.750 | 2.170 | 8.490 | 0.750 |
| 300.0 | 20.2 | 299.9 | 8.640 | 30.010 | 5.150 | 2.150 | 6.390 | 1.290 |
| 315.0 | 20.2 | 314.5 | 7.470 | 25.290 | 5.840 | 2.100 | 4.770 | 1.660 |
| 330.0 | 20.1 | 329.3 | 6.360 | 20.910 | 5.940 | 2.040 | 3.420 | 1.880 |
| 345.0 | 20.1 | 344.4 | 6.200 | 18.180 | 6.430 | 1.990 | 2.520 | 1.990 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.41: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 25.2 | -0.2 | 7.200 | 17.760 | 6.190 | 2.050 | 2.640 | 1.970 |
| 15.0 | 25.2 | 14.9 | 7.070 | 19.250 | 6.310 | 2.030 | 3.380 | 1.950 |
| 30.0 | 25.2 | 30.0 | 6.720 | 21.170 | 5.910 | 2.030 | 4.300 | 1.850 |
| 45.0 | 25.2 | 45.0 | 6.440 | 21.860 | 5.190 | 2.040 | 5.040 | 1.670 |
| 60.0 | 25.3 | 59.8 | 8.070 | 24.660 | 4.780 | 2.010 | 5.790 | 1.350 |
| 75.0 | 25.3 | 74.6 | 6.930 | 25.380 | 3.080 | 1.970 | 5.310 | 0.880 |
| 90.0 | 25.3 | 89.6 | 6.900 | 26.700 | 1.410 | 1.910 | 5.910 | 0.390 |
| 105.0 | 25.3 | 104.6 | 7.190 | 28.580 | 1.710 | 1.870 | 6.230 | 0.460 |
| 120.0 | 25.2 | 119.6 | 5.840 | 32.290 | 2.630 | 1.820 | 9.980 | 0.810 |
| 135.0 | 25.2 | 134.6 | 6.270 | 29.670 | 3.480 | 1.720 | 8.100 | 1.030 |
| 150.0 | 25.3 | 149.5 | 5.410 | 27.260 | 4.290 | 1.730 | 6.610 | 1.300 |
| 165.0 | 25.4 | 164.5 | 4.480 | 22.220 | 4.590 | 1.420 | 3.170 | 1.260 |
| 180.0 | 25.8 | 179.8 | 5.120 | 19.150 | 3.840 | 1.740 | 2.000 | 1.390 |
| 195.0 | 25.6 | 194.9 | 4.450 | 25.370 | 4.820 | 1.450 | 4.190 | 1.280 |
| 210.0 | 25.3 | 210.1 | 6.230 | 37.790 | 4.620 | 1.760 | 7.730 | 1.350 |
| 225.0 | 25.3 | 225.0 | 4.910 | 40.960 | 2.910 | 1.720 | 8.540 | 1.040 |
| 240.0 | 25.2 | 240.3 | 6.980 | 41.190 | 3.420 | 1.870 | 11.800 | 0.950 |
| 255.0 | 25.3 | 255.2 | 7.790 | 39.950 | 1.930 | 2.030 | 10.250 | 0.620 |
| 270.0 | 25.3 | 270.2 | 7.350 | 36.810 | 1.470 | 2.100 | 9.720 | 0.350 |
| 285.0 | 25.3 | 285.1 | 8.430 | 36.080 | 2.960 | 2.130 | 9.230 | 0.760 |
| 300.0 | 25.3 | 299.9 | 8.420 | 28.580 | 4.170 | 2.150 | 6.440 | 1.270 |
| 315.0 | 25.3 | 314.7 | 6.890 | 26.230 | 5.330 | 2.130 | 4.660 | 1.620 |
| 330.0 | 25.2 | 329.6 | 7.450 | 22.610 | 6.160 | 2.090 | 3.410 | 1.830 |
| 345.0 | 25.2 | 344.7 | 7.000 | 18.610 | 6.250 | 2.060 | 2.610 | 1.930 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table R.42: Course-Keeping Ability and Motion Parameters: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|-------------|--------------|---------------------------|-------------|--------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Heave m | Roll deg | Pitch deg | Heave m | Roll deg | Pitch deg |
| 0.0 | 30.4 | -0.0 | 7.940 | 19.870 | 6.170 | 2.120 | 2.900 | 1.910 |
| 15.0 | 30.4 | 15.1 | 7.680 | 20.330 | 6.750 | 2.110 | 3.600 | 1.880 |
| 30.0 | 30.4 | 30.1 | 7.270 | 22.240 | 5.980 | 2.090 | 4.440 | 1.800 |
| 45.0 | 30.4 | 45.1 | 7.810 | 24.060 | 5.530 | 2.080 | 5.310 | 1.640 |
| 60.0 | 30.4 | 60.0 | 7.330 | 25.170 | 4.500 | 2.030 | 6.300 | 1.340 |
| 75.0 | 30.4 | 74.7 | 8.050 | 23.710 | 2.990 | 1.950 | 5.930 | 0.900 |
| 90.0 | 30.4 | 89.7 | 6.650 | 27.690 | 1.670 | 1.860 | 6.680 | 0.450 |
| 105.0 | 30.4 | 104.7 | 5.860 | 30.800 | 1.770 | 1.800 | 6.650 | 0.460 |
| 120.0 | 30.3 | 119.7 | 5.610 | 36.510 | 2.810 | 1.780 | 12.260 | 0.840 |
| 135.0 | 30.2 | 134.5 | 5.480 | 33.660 | 3.880 | 1.780 | 10.630 | 1.160 |
| 150.0 | 30.3 | 149.2 | 6.960 | 42.020 | 5.150 | 2.120 | 8.400 | 1.530 |
| 165.0 | 30.8 | 164.0 | 4.100 | 25.140 | 4.890 | 1.400 | 3.960 | 1.390 |
| 180.0 | 31.2 | 179.7 | 3.990 | 26.500 | 3.900 | 1.530 | 3.150 | 1.390 |
| 195.0 | 30.9 | 194.7 | 4.340 | 25.300 | 4.940 | 1.380 | 4.580 | 1.380 |
| 210.0 | 30.5 | 210.3 | 7.080 | 37.520 | 5.040 | 2.140 | 8.630 | 1.530 |
| 225.0 | 30.4 | 225.1 | 5.630 | 40.400 | 3.480 | 1.720 | 9.740 | 1.080 |
| 240.0 | 30.4 | 240.1 | 5.800 | 46.880 | 3.210 | 1.840 | 12.320 | 0.920 |
| 255.0 | 30.4 | 255.1 | 8.080 | 45.430 | 2.120 | 1.970 | 9.670 | 0.630 |
| 270.0 | 30.4 | 270.1 | 7.250 | 38.870 | 1.640 | 2.050 | 9.490 | 0.410 |
| 285.0 | 30.4 | 285.1 | 7.100 | 37.060 | 2.830 | 2.100 | 9.140 | 0.780 |
| 300.0 | 30.4 | 299.9 | 7.750 | 30.330 | 4.350 | 2.150 | 6.300 | 1.250 |
| 315.0 | 30.4 | 314.8 | 8.200 | 26.830 | 5.560 | 2.160 | 4.360 | 1.580 |
| 330.0 | 30.4 | 329.8 | 7.690 | 23.020 | 6.080 | 2.150 | 3.140 | 1.770 |
| 345.0 | 30.4 | 344.9 | 8.240 | 20.170 | 6.470 | 2.130 | 2.740 | 1.870 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex S

Tables of Hangar Deck Accelerations – Bretschneider Spectrum (Open Ocean)

Table S.1: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -23.8 | 0.695 | 1.547 | 10.612 | 0.166 | 0.318 | 0.247 |
| 15.0 | -0.2 | -4.6 | 0.687 | 0.803 | 10.486 | 0.154 | 0.119 | 0.216 |
| 30.0 | -0.2 | 16.7 | 0.645 | 1.398 | 10.438 | 0.157 | 0.251 | 0.212 |
| 45.0 | -0.2 | 33.5 | 0.713 | 2.218 | 10.503 | 0.173 | 0.469 | 0.240 |
| 60.0 | -0.3 | 44.5 | 0.740 | 3.015 | 10.845 | 0.185 | 0.640 | 0.273 |
| 75.0 | -0.5 | 52.4 | 0.702 | 4.528 | 11.373 | 0.192 | 0.783 | 0.313 |
| 90.0 | -0.6 | 59.0 | 0.797 | 5.340 | 12.039 | 0.195 | 0.914 | 0.361 |
| 105.0 | -0.7 | 63.4 | 0.877 | 4.679 | 11.992 | 0.192 | 0.967 | 0.395 |
| 120.0 | -1.6 | 96.0 | 0.681 | 6.297 | 12.289 | 0.127 | 1.165 | 0.613 |
| 135.0 | -2.1 | 102.8 | 0.800 | 5.456 | 12.100 | 0.173 | 1.052 | 0.499 |
| 150.0 | -2.4 | 105.0 | 0.929 | 4.678 | 11.612 | 0.177 | 1.019 | 0.482 |
| 165.0 | -2.5 | 106.2 | 0.845 | 4.901 | 12.027 | 0.175 | 1.014 | 0.497 |
| 180.0 | -0.7 | 74.0 | 0.705 | 5.715 | 12.487 | 0.146 | 0.674 | 0.347 |
| 195.0 | -0.0 | 200.3 | 0.417 | 1.467 | 10.541 | 0.119 | 0.290 | 0.191 |
| 210.0 | -0.2 | 382.2 | 0.704 | 3.747 | 11.613 | 0.183 | 0.681 | 0.366 |
| 225.0 | -0.0 | 384.6 | 0.721 | 3.686 | 11.736 | 0.196 | 0.718 | 0.368 |
| 240.0 | 0.7 | 293.3 | 0.890 | 3.618 | 11.828 | 0.207 | 0.922 | 0.477 |
| 255.0 | 0.6 | 292.8 | 0.908 | 4.123 | 11.823 | 0.209 | 0.962 | 0.499 |
| 270.0 | 0.3 | 295.4 | 0.957 | 4.143 | 12.186 | 0.209 | 0.910 | 0.475 |
| 285.0 | 0.2 | 299.4 | 0.688 | 3.746 | 11.572 | 0.210 | 0.895 | 0.437 |
| 300.0 | 0.0 | 303.8 | 0.755 | 4.294 | 11.168 | 0.206 | 0.808 | 0.402 |
| 315.0 | -0.1 | 309.3 | 0.816 | 3.228 | 11.205 | 0.200 | 0.701 | 0.363 |
| 330.0 | -0.1 | 314.8 | 0.768 | 2.978 | 10.817 | 0.192 | 0.585 | 0.328 |
| 345.0 | -0.1 | 322.9 | 0.738 | 2.078 | 10.817 | 0.181 | 0.471 | 0.290 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.2: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.1 | 0.671 | 0.888 | 10.621 | 0.179 | 0.117 | 0.270 |
| 15.0 | 4.8 | 12.8 | 0.687 | 1.033 | 10.568 | 0.181 | 0.164 | 0.267 |
| 30.0 | 4.8 | 27.6 | 0.875 | 1.398 | 10.621 | 0.192 | 0.291 | 0.283 |
| 45.0 | 4.7 | 42.1 | 0.836 | 2.023 | 10.816 | 0.209 | 0.467 | 0.315 |
| 60.0 | 4.4 | 54.6 | 0.892 | 2.950 | 10.997 | 0.222 | 0.673 | 0.357 |
| 75.0 | 4.2 | 58.0 | 0.813 | 3.676 | 11.197 | 0.221 | 0.766 | 0.378 |
| 90.0 | 4.1 | 61.8 | 0.719 | 5.344 | 12.033 | 0.219 | 0.815 | 0.408 |
| 105.0 | 4.1 | 64.0 | 0.693 | 3.973 | 11.893 | 0.218 | 0.857 | 0.419 |
| 120.0 | 4.1 | 65.4 | 0.713 | 3.749 | 12.178 | 0.217 | 0.856 | 0.430 |
| 135.0 | 4.1 | 65.8 | 0.733 | 4.382 | 11.646 | 0.218 | 0.830 | 0.420 |
| 150.0 | 4.6 | 145.4 | 0.402 | 1.968 | 10.359 | 0.101 | 0.431 | 0.130 |
| 165.0 | 4.9 | 163.1 | 0.367 | 1.450 | 10.242 | 0.088 | 0.289 | 0.097 |
| 180.0 | 4.9 | 178.7 | 0.332 | 1.068 | 10.253 | 0.083 | 0.191 | 0.092 |
| 195.0 | 4.9 | 194.1 | 0.336 | 1.277 | 10.305 | 0.085 | 0.277 | 0.102 |
| 210.0 | 4.9 | 210.1 | 0.367 | 2.006 | 10.398 | 0.095 | 0.432 | 0.129 |
| 225.0 | 4.6 | 229.1 | 0.429 | 2.625 | 10.585 | 0.117 | 0.633 | 0.207 |
| 240.0 | 4.6 | 285.6 | 0.703 | 3.907 | 12.410 | 0.203 | 0.943 | 0.614 |
| 255.0 | 4.5 | 287.1 | 0.840 | 4.387 | 12.792 | 0.211 | 0.941 | 0.609 |
| 270.0 | 4.5 | 288.9 | 0.861 | 4.873 | 12.632 | 0.217 | 0.937 | 0.588 |
| 285.0 | 4.7 | 291.1 | 0.900 | 4.236 | 12.245 | 0.225 | 0.896 | 0.551 |
| 300.0 | 4.9 | 301.1 | 0.794 | 3.100 | 11.384 | 0.234 | 0.742 | 0.425 |
| 315.0 | 4.8 | 314.2 | 0.848 | 2.770 | 10.813 | 0.219 | 0.526 | 0.348 |
| 330.0 | 4.8 | 328.5 | 0.814 | 1.839 | 10.714 | 0.201 | 0.324 | 0.309 |
| 345.0 | 4.8 | 343.2 | 0.721 | 1.245 | 10.638 | 0.186 | 0.191 | 0.281 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.3: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.741 | 0.967 | 10.776 | 0.201 | 0.100 | 0.324 |
| 15.0 | 10.0 | 14.4 | 0.719 | 1.025 | 10.725 | 0.204 | 0.144 | 0.321 |
| 30.0 | 10.0 | 29.4 | 0.872 | 1.519 | 10.816 | 0.218 | 0.267 | 0.323 |
| 45.0 | 10.0 | 44.4 | 0.853 | 2.130 | 10.839 | 0.236 | 0.443 | 0.326 |
| 60.0 | 10.0 | 59.2 | 0.934 | 2.915 | 11.120 | 0.249 | 0.679 | 0.414 |
| 75.0 | 10.0 | 73.0 | 0.885 | 4.418 | 12.133 | 0.224 | 0.837 | 0.637 |
| 90.0 | 9.6 | 85.5 | 0.478 | 7.587 | 12.995 | 0.105 | 0.973 | 0.833 |
| 105.0 | 9.3 | 100.2 | 0.703 | 5.568 | 12.761 | 0.118 | 1.020 | 0.508 |
| 120.0 | 9.7 | 117.2 | 0.428 | 4.600 | 11.112 | 0.097 | 0.923 | 0.249 |
| 135.0 | 9.9 | 133.4 | 0.272 | 3.180 | 10.274 | 0.079 | 0.986 | 0.145 |
| 150.0 | 10.0 | 148.9 | 0.209 | 3.356 | 10.086 | 0.066 | 1.022 | 0.119 |
| 165.0 | 10.1 | 164.2 | 0.232 | 3.736 | 10.000 | 0.060 | 0.840 | 0.093 |
| 180.0 | 10.1 | 179.3 | 0.217 | 2.466 | 9.993 | 0.058 | 0.514 | 0.064 |
| 195.0 | 10.1 | 194.6 | 0.244 | 1.860 | 10.097 | 0.062 | 0.473 | 0.054 |
| 210.0 | 10.1 | 210.3 | 0.214 | 2.407 | 10.159 | 0.069 | 0.836 | 0.081 |
| 225.0 | 10.0 | 225.7 | 0.252 | 3.114 | 10.357 | 0.080 | 0.926 | 0.133 |
| 240.0 | 9.8 | 241.9 | 0.421 | 3.523 | 10.968 | 0.099 | 0.928 | 0.243 |
| 255.0 | 9.4 | 259.4 | 0.784 | 5.077 | 12.354 | 0.126 | 1.026 | 0.526 |
| 270.0 | 9.7 | 274.2 | 0.504 | 5.917 | 13.092 | 0.092 | 1.036 | 0.889 |
| 285.0 | 10.1 | 286.7 | 0.770 | 3.936 | 12.158 | 0.225 | 0.880 | 0.725 |
| 300.0 | 10.1 | 300.1 | 0.862 | 3.051 | 11.200 | 0.253 | 0.697 | 0.472 |
| 315.0 | 10.0 | 314.7 | 0.911 | 1.960 | 10.854 | 0.242 | 0.457 | 0.347 |
| 330.0 | 10.0 | 329.7 | 0.856 | 1.488 | 10.772 | 0.222 | 0.268 | 0.331 |
| 345.0 | 10.0 | 344.6 | 0.839 | 1.085 | 10.714 | 0.206 | 0.147 | 0.325 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.4: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.2 | 0.766 | 1.076 | 10.772 | 0.219 | 0.099 | 0.320 |
| 15.0 | 15.2 | 14.8 | 0.765 | 1.160 | 10.732 | 0.223 | 0.150 | 0.316 |
| 30.0 | 15.2 | 29.8 | 0.898 | 1.694 | 10.837 | 0.238 | 0.263 | 0.328 |
| 45.0 | 15.1 | 44.8 | 0.896 | 2.252 | 10.986 | 0.257 | 0.424 | 0.372 |
| 60.0 | 15.2 | 59.6 | 0.959 | 3.180 | 11.559 | 0.264 | 0.646 | 0.528 |
| 75.0 | 15.2 | 74.0 | 0.775 | 4.298 | 12.289 | 0.226 | 0.807 | 0.771 |
| 90.0 | 15.1 | 88.4 | 0.338 | 8.318 | 13.248 | 0.054 | 0.966 | 0.841 |
| 105.0 | 15.0 | 103.3 | 0.487 | 5.094 | 12.191 | 0.093 | 0.976 | 0.418 |
| 120.0 | 15.1 | 118.8 | 0.251 | 4.542 | 10.598 | 0.066 | 1.412 | 0.238 |
| 135.0 | 15.2 | 134.5 | 0.161 | 3.985 | 10.107 | 0.050 | 1.471 | 0.199 |
| 150.0 | 15.2 | 149.7 | 0.275 | 3.409 | 10.092 | 0.069 | 1.010 | 0.132 |
| 165.0 | 15.1 | 164.7 | 0.236 | 2.181 | 10.076 | 0.065 | 0.506 | 0.080 |
| 180.0 | 15.3 | 179.7 | 0.248 | 2.285 | 9.940 | 0.059 | 0.264 | 0.044 |
| 195.0 | 15.2 | 194.6 | 0.245 | 3.056 | 9.877 | 0.058 | 0.445 | 0.052 |
| 210.0 | 15.2 | 209.8 | 0.200 | 3.386 | 9.880 | 0.059 | 0.903 | 0.060 |
| 225.0 | 15.2 | 225.3 | 0.180 | 3.947 | 10.072 | 0.056 | 1.478 | 0.114 |
| 240.0 | 15.1 | 241.1 | 0.406 | 4.248 | 11.135 | 0.071 | 1.363 | 0.199 |
| 255.0 | 15.0 | 256.7 | 0.639 | 4.872 | 11.972 | 0.103 | 1.055 | 0.418 |
| 270.0 | 15.1 | 271.7 | 0.310 | 4.808 | 13.007 | 0.048 | 1.079 | 0.891 |
| 285.0 | 15.3 | 285.9 | 0.803 | 3.651 | 12.465 | 0.225 | 0.904 | 0.852 |
| 300.0 | 15.2 | 300.1 | 0.911 | 2.583 | 11.586 | 0.267 | 0.657 | 0.592 |
| 315.0 | 15.2 | 314.9 | 0.937 | 1.830 | 11.188 | 0.259 | 0.422 | 0.412 |
| 330.0 | 15.2 | 329.9 | 0.876 | 1.421 | 10.990 | 0.240 | 0.242 | 0.345 |
| 345.0 | 15.2 | 344.8 | 0.816 | 1.010 | 10.865 | 0.225 | 0.129 | 0.322 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.5: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.900 | 1.188 | 11.012 | 0.234 | 0.107 | 0.393 |
| 15.0 | 20.3 | 14.9 | 0.818 | 1.427 | 11.183 | 0.239 | 0.150 | 0.396 |
| 30.0 | 20.3 | 29.9 | 0.925 | 1.701 | 11.428 | 0.254 | 0.254 | 0.441 |
| 45.0 | 20.3 | 44.9 | 0.973 | 2.282 | 11.369 | 0.272 | 0.407 | 0.528 |
| 60.0 | 20.3 | 59.8 | 1.006 | 3.478 | 11.786 | 0.276 | 0.618 | 0.692 |
| 75.0 | 20.4 | 74.4 | 0.811 | 5.089 | 12.744 | 0.226 | 0.807 | 0.886 |
| 90.0 | 20.3 | 89.1 | 0.290 | 6.272 | 13.354 | 0.044 | 0.947 | 0.831 |
| 105.0 | 20.2 | 104.0 | 0.478 | 6.744 | 12.425 | 0.076 | 1.120 | 0.392 |
| 120.0 | 20.3 | 119.5 | 0.162 | 5.376 | 10.595 | 0.041 | 1.843 | 0.298 |
| 135.0 | 20.3 | 134.9 | 0.215 | 4.463 | 10.139 | 0.054 | 1.339 | 0.155 |
| 150.0 | 20.4 | 149.6 | 0.309 | 2.965 | 9.963 | 0.063 | 0.688 | 0.076 |
| 165.0 | 20.8 | 164.7 | 0.252 | 2.770 | 9.917 | 0.065 | 0.311 | 0.047 |
| 180.0 | 20.1 | 179.6 | 0.374 | 3.457 | 9.920 | 0.072 | 0.477 | 0.083 |
| 195.0 | 20.7 | 195.0 | 0.380 | 3.296 | 9.926 | 0.067 | 0.469 | 0.071 |
| 210.0 | 20.5 | 210.1 | 0.289 | 4.294 | 9.898 | 0.061 | 0.783 | 0.099 |
| 225.0 | 20.3 | 225.0 | 0.188 | 4.650 | 9.899 | 0.049 | 1.335 | 0.137 |
| 240.0 | 20.3 | 240.5 | 0.219 | 5.870 | 10.693 | 0.044 | 1.799 | 0.183 |
| 255.0 | 20.2 | 255.9 | 0.508 | 6.462 | 11.862 | 0.083 | 1.192 | 0.355 |
| 270.0 | 20.3 | 270.9 | 0.357 | 5.225 | 12.826 | 0.043 | 1.110 | 0.877 |
| 285.0 | 20.4 | 285.5 | 0.793 | 3.755 | 12.534 | 0.223 | 0.949 | 0.961 |
| 300.0 | 20.3 | 300.1 | 0.959 | 2.484 | 12.020 | 0.274 | 0.671 | 0.751 |
| 315.0 | 20.3 | 315.0 | 0.985 | 1.943 | 11.552 | 0.271 | 0.414 | 0.566 |
| 330.0 | 20.3 | 329.9 | 0.936 | 1.345 | 11.299 | 0.254 | 0.235 | 0.463 |
| 345.0 | 20.3 | 344.9 | 0.917 | 1.086 | 11.213 | 0.240 | 0.129 | 0.408 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.6: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.819 | 1.355 | 11.398 | 0.243 | 0.125 | 0.539 |
| 15.0 | 25.4 | 14.9 | 0.886 | 1.574 | 11.465 | 0.248 | 0.156 | 0.555 |
| 30.0 | 25.4 | 29.9 | 0.903 | 1.882 | 11.572 | 0.263 | 0.248 | 0.612 |
| 45.0 | 25.4 | 44.9 | 0.939 | 2.593 | 11.800 | 0.280 | 0.397 | 0.713 |
| 60.0 | 25.4 | 59.8 | 1.043 | 3.227 | 12.350 | 0.283 | 0.607 | 0.864 |
| 75.0 | 25.4 | 74.6 | 0.743 | 4.271 | 12.946 | 0.227 | 0.795 | 0.998 |
| 90.0 | 25.4 | 89.4 | 0.334 | 6.627 | 13.087 | 0.042 | 0.957 | 0.821 |
| 105.0 | 25.4 | 104.4 | 0.323 | 5.563 | 11.504 | 0.062 | 1.258 | 0.352 |
| 120.0 | 25.4 | 119.9 | 0.346 | 6.464 | 10.550 | 0.055 | 2.035 | 0.282 |
| 135.0 | 25.3 | 134.9 | 0.437 | 4.333 | 10.061 | 0.069 | 1.185 | 0.124 |
| 150.0 | 25.4 | 149.9 | 0.438 | 2.898 | 9.948 | 0.082 | 0.577 | 0.077 |
| 165.0 | 25.3 | 164.9 | 0.376 | 3.249 | 10.025 | 0.087 | 0.400 | 0.083 |
| 180.0 | 25.6 | 179.9 | 0.353 | 3.071 | 10.043 | 0.081 | 0.370 | 0.088 |
| 195.0 | 25.3 | 194.7 | 0.385 | 3.340 | 9.974 | 0.086 | 0.617 | 0.114 |
| 210.0 | 25.3 | 209.8 | 0.486 | 4.020 | 9.996 | 0.080 | 0.783 | 0.123 |
| 225.0 | 25.1 | 224.5 | 0.383 | 5.019 | 9.875 | 0.063 | 1.320 | 0.203 |
| 240.0 | 25.4 | 240.2 | 0.237 | 6.171 | 10.074 | 0.054 | 2.222 | 0.278 |
| 255.0 | 25.4 | 255.6 | 0.303 | 5.717 | 11.105 | 0.067 | 1.353 | 0.299 |
| 270.0 | 25.4 | 270.6 | 0.291 | 5.311 | 12.809 | 0.044 | 1.145 | 0.863 |
| 285.0 | 25.4 | 285.4 | 0.759 | 3.876 | 13.323 | 0.220 | 1.008 | 1.059 |
| 300.0 | 25.4 | 300.1 | 1.010 | 3.047 | 12.491 | 0.277 | 0.708 | 0.910 |
| 315.0 | 25.4 | 315.1 | 0.939 | 2.016 | 12.201 | 0.277 | 0.438 | 0.744 |
| 330.0 | 25.4 | 330.0 | 0.901 | 1.500 | 11.740 | 0.262 | 0.253 | 0.633 |
| 345.0 | 25.4 | 345.0 | 0.912 | 1.207 | 11.596 | 0.248 | 0.151 | 0.564 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.7: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 0.789 | 1.358 | 11.921 | 0.246 | 0.141 | 0.691 |
| 15.0 | 30.5 | 14.9 | 0.866 | 1.498 | 11.894 | 0.252 | 0.155 | 0.711 |
| 30.0 | 30.5 | 29.9 | 0.883 | 1.982 | 11.988 | 0.268 | 0.241 | 0.778 |
| 45.0 | 30.5 | 44.9 | 0.927 | 2.964 | 12.466 | 0.284 | 0.395 | 0.886 |
| 60.0 | 30.5 | 59.8 | 0.960 | 3.991 | 12.715 | 0.286 | 0.616 | 1.021 |
| 75.0 | 30.5 | 74.7 | 0.744 | 3.950 | 13.086 | 0.229 | 0.776 | 1.102 |
| 90.0 | 30.5 | 89.5 | 0.344 | 6.901 | 13.085 | 0.044 | 0.960 | 0.815 |
| 105.0 | 30.5 | 104.6 | 0.334 | 6.424 | 11.760 | 0.052 | 1.432 | 0.334 |
| 120.0 | 30.4 | 119.9 | 0.505 | 5.938 | 10.074 | 0.080 | 2.168 | 0.292 |
| 135.0 | 30.5 | 134.7 | 0.344 | 3.589 | 9.948 | 0.080 | 1.123 | 0.115 |
| 150.0 | 30.5 | 149.9 | 0.396 | 3.323 | 10.080 | 0.085 | 0.666 | 0.107 |
| 165.0 | 30.5 | 164.8 | 0.351 | 2.883 | 10.128 | 0.085 | 0.460 | 0.108 |
| 180.0 | 30.5 | 179.9 | 0.450 | 3.218 | 10.144 | 0.089 | 0.500 | 0.121 |
| 195.0 | 30.6 | 194.9 | 0.414 | 3.795 | 10.149 | 0.086 | 0.679 | 0.133 |
| 210.0 | 30.4 | 209.9 | 0.379 | 4.109 | 10.005 | 0.089 | 0.894 | 0.146 |
| 225.0 | 30.4 | 224.9 | 0.321 | 4.318 | 9.890 | 0.079 | 1.106 | 0.144 |
| 240.0 | 30.4 | 240.1 | 0.446 | 7.030 | 10.089 | 0.077 | 2.221 | 0.314 |
| 255.0 | 30.5 | 255.3 | 0.249 | 5.623 | 11.029 | 0.061 | 1.563 | 0.246 |
| 270.0 | 30.5 | 270.4 | 0.230 | 4.905 | 13.063 | 0.048 | 1.190 | 0.848 |
| 285.0 | 30.5 | 285.3 | 0.742 | 4.515 | 13.345 | 0.218 | 1.043 | 1.153 |
| 300.0 | 30.5 | 300.2 | 0.935 | 3.008 | 12.979 | 0.278 | 0.766 | 1.057 |
| 315.0 | 30.5 | 315.1 | 0.888 | 2.138 | 12.664 | 0.279 | 0.478 | 0.908 |
| 330.0 | 30.5 | 330.0 | 0.941 | 1.746 | 12.183 | 0.265 | 0.287 | 0.789 |
| 345.0 | 30.5 | 345.0 | 0.824 | 1.341 | 11.957 | 0.251 | 0.181 | 0.716 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.8: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.0 | -14.9 | 0.488 | 1.678 | 10.361 | 0.122 | 0.390 | 0.191 |
| 15.0 | -0.1 | -6.0 | 0.487 | 1.141 | 10.353 | 0.124 | 0.255 | 0.184 |
| 30.0 | -0.2 | 5.3 | 0.537 | 1.561 | 10.340 | 0.123 | 0.332 | 0.182 |
| 45.0 | -0.2 | 22.7 | 0.533 | 2.292 | 10.460 | 0.120 | 0.599 | 0.191 |
| 60.0 | -0.1 | 39.4 | 0.372 | 2.940 | 10.578 | 0.110 | 0.794 | 0.210 |
| 75.0 | -0.1 | 53.3 | 0.374 | 3.497 | 10.702 | 0.094 | 0.889 | 0.231 |
| 90.0 | -0.1 | 68.5 | 0.250 | 3.285 | 10.982 | 0.062 | 0.924 | 0.260 |
| 105.0 | -0.1 | 88.4 | 0.169 | 3.545 | 11.047 | 0.012 | 0.926 | 0.283 |
| 120.0 | -0.3 | 99.9 | 0.271 | 3.416 | 10.791 | 0.030 | 0.936 | 0.280 |
| 135.0 | -0.5 | 108.2 | 0.305 | 3.067 | 10.855 | 0.051 | 0.928 | 0.269 |
| 150.0 | -0.8 | 115.2 | 0.335 | 3.025 | 10.665 | 0.068 | 0.913 | 0.257 |
| 165.0 | -1.0 | 119.3 | 0.369 | 2.996 | 10.702 | 0.076 | 0.889 | 0.250 |
| 180.0 | -0.5 | 53.8 | 0.497 | 2.674 | 10.736 | 0.112 | 0.624 | 0.205 |
| 195.0 | 0.1 | 338.6 | 0.434 | 3.047 | 10.751 | 0.106 | 0.717 | 0.222 |
| 210.0 | 0.2 | 248.5 | 0.349 | 3.184 | 10.836 | 0.060 | 0.892 | 0.284 |
| 225.0 | 0.1 | 255.3 | 0.327 | 3.304 | 10.793 | 0.045 | 0.904 | 0.301 |
| 240.0 | 0.1 | 263.7 | 0.251 | 3.320 | 10.924 | 0.027 | 0.906 | 0.317 |
| 255.0 | 0.1 | 275.2 | 0.164 | 3.351 | 11.015 | 0.021 | 0.894 | 0.322 |
| 270.0 | 0.2 | 288.2 | 0.236 | 3.006 | 11.139 | 0.054 | 0.879 | 0.306 |
| 285.0 | 0.2 | 298.6 | 0.292 | 3.121 | 11.013 | 0.080 | 0.854 | 0.281 |
| 300.0 | 0.1 | 308.0 | 0.327 | 2.947 | 10.783 | 0.097 | 0.820 | 0.257 |
| 315.0 | 0.1 | 317.0 | 0.419 | 3.000 | 10.671 | 0.108 | 0.755 | 0.236 |
| 330.0 | 0.1 | 326.3 | 0.474 | 2.865 | 10.554 | 0.115 | 0.667 | 0.217 |
| 345.0 | 0.0 | 336.0 | 0.470 | 2.372 | 10.417 | 0.119 | 0.539 | 0.201 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.9: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.9 | -2.4 | 0.533 | 1.018 | 10.373 | 0.143 | 0.164 | 0.201 |
| 15.0 | 4.8 | 12.3 | 0.541 | 1.416 | 10.407 | 0.142 | 0.316 | 0.202 |
| 30.0 | 4.8 | 27.1 | 0.569 | 2.039 | 10.445 | 0.137 | 0.528 | 0.212 |
| 45.0 | 4.8 | 42.0 | 0.479 | 2.559 | 10.625 | 0.126 | 0.691 | 0.229 |
| 60.0 | 4.8 | 56.5 | 0.336 | 3.206 | 10.795 | 0.103 | 0.796 | 0.257 |
| 75.0 | 4.8 | 71.2 | 0.224 | 3.077 | 10.964 | 0.059 | 0.827 | 0.290 |
| 90.0 | 4.8 | 85.7 | 0.058 | 3.088 | 10.967 | 0.013 | 0.841 | 0.303 |
| 105.0 | 4.7 | 100.0 | 0.129 | 3.033 | 10.837 | 0.022 | 0.853 | 0.286 |
| 120.0 | 4.4 | 110.5 | 0.234 | 3.456 | 10.964 | 0.044 | 0.846 | 0.259 |
| 135.0 | 4.2 | 120.6 | 0.259 | 2.756 | 10.583 | 0.058 | 0.804 | 0.232 |
| 150.0 | 4.5 | 143.2 | 0.329 | 2.212 | 10.477 | 0.074 | 0.562 | 0.178 |
| 165.0 | 4.7 | 161.6 | 0.342 | 1.488 | 10.363 | 0.079 | 0.329 | 0.150 |
| 180.0 | 4.9 | 178.1 | 0.345 | 1.329 | 10.367 | 0.080 | 0.257 | 0.138 |
| 195.0 | 4.9 | 194.3 | 0.356 | 1.624 | 10.399 | 0.079 | 0.398 | 0.139 |
| 210.0 | 4.9 | 210.7 | 0.338 | 2.004 | 10.407 | 0.075 | 0.582 | 0.153 |
| 225.0 | 4.9 | 227.2 | 0.277 | 2.440 | 10.541 | 0.068 | 0.728 | 0.184 |
| 240.0 | 4.8 | 243.0 | 0.221 | 2.856 | 10.671 | 0.054 | 0.822 | 0.233 |
| 255.0 | 4.9 | 257.2 | 0.165 | 2.939 | 10.823 | 0.031 | 0.841 | 0.281 |
| 270.0 | 5.0 | 271.5 | 0.044 | 2.980 | 11.010 | 0.008 | 0.831 | 0.320 |
| 285.0 | 5.0 | 286.0 | 0.233 | 3.264 | 11.209 | 0.049 | 0.807 | 0.318 |
| 300.0 | 5.0 | 300.3 | 0.399 | 2.914 | 11.055 | 0.096 | 0.777 | 0.284 |
| 315.0 | 5.0 | 314.4 | 0.464 | 2.424 | 10.557 | 0.123 | 0.679 | 0.245 |
| 330.0 | 4.9 | 328.6 | 0.485 | 2.193 | 10.451 | 0.135 | 0.536 | 0.221 |
| 345.0 | 4.9 | 343.1 | 0.512 | 1.667 | 10.372 | 0.141 | 0.346 | 0.207 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.10: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.1 | -0.6 | 0.763 | 0.852 | 10.565 | 0.163 | 0.092 | 0.213 |
| 15.0 | 10.1 | 14.4 | 0.654 | 1.428 | 10.457 | 0.160 | 0.260 | 0.213 |
| 30.0 | 10.1 | 29.5 | 0.543 | 1.942 | 10.661 | 0.154 | 0.458 | 0.221 |
| 45.0 | 10.1 | 44.5 | 0.514 | 2.676 | 10.605 | 0.138 | 0.604 | 0.242 |
| 60.0 | 10.1 | 59.3 | 0.362 | 2.782 | 10.753 | 0.106 | 0.709 | 0.281 |
| 75.0 | 10.2 | 74.2 | 0.215 | 3.102 | 11.223 | 0.053 | 0.708 | 0.314 |
| 90.0 | 10.1 | 89.0 | 0.054 | 2.949 | 11.101 | 0.013 | 0.739 | 0.309 |
| 105.0 | 10.1 | 103.9 | 0.120 | 3.407 | 10.877 | 0.025 | 0.769 | 0.271 |
| 120.0 | 10.0 | 118.6 | 0.200 | 3.840 | 10.722 | 0.041 | 0.833 | 0.230 |
| 135.0 | 10.0 | 133.7 | 0.201 | 3.264 | 10.536 | 0.049 | 0.766 | 0.190 |
| 150.0 | 10.0 | 148.9 | 0.182 | 2.698 | 10.303 | 0.054 | 0.723 | 0.158 |
| 165.0 | 10.1 | 164.1 | 0.221 | 2.349 | 10.238 | 0.056 | 0.549 | 0.134 |
| 180.0 | 10.1 | 179.3 | 0.257 | 1.885 | 10.234 | 0.057 | 0.342 | 0.116 |
| 195.0 | 10.1 | 194.6 | 0.231 | 1.803 | 10.149 | 0.057 | 0.379 | 0.105 |
| 210.0 | 10.1 | 210.1 | 0.218 | 2.170 | 10.208 | 0.055 | 0.661 | 0.114 |
| 225.0 | 10.1 | 225.6 | 0.260 | 2.577 | 10.520 | 0.051 | 0.830 | 0.144 |
| 240.0 | 10.1 | 240.8 | 0.220 | 3.082 | 10.763 | 0.044 | 0.916 | 0.190 |
| 255.0 | 10.2 | 255.6 | 0.191 | 3.318 | 10.972 | 0.030 | 0.866 | 0.249 |
| 270.0 | 10.2 | 270.4 | 0.066 | 3.219 | 11.283 | 0.015 | 0.818 | 0.311 |
| 285.0 | 10.2 | 285.1 | 0.198 | 3.138 | 11.186 | 0.049 | 0.775 | 0.333 |
| 300.0 | 10.1 | 299.9 | 0.373 | 2.783 | 10.930 | 0.104 | 0.725 | 0.304 |
| 315.0 | 10.1 | 314.6 | 0.513 | 2.530 | 10.725 | 0.138 | 0.594 | 0.257 |
| 330.0 | 10.1 | 329.5 | 0.614 | 2.006 | 10.520 | 0.153 | 0.428 | 0.228 |
| 345.0 | 10.1 | 344.4 | 0.738 | 1.359 | 10.559 | 0.160 | 0.235 | 0.217 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.11: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.3 | 0.642 | 0.949 | 10.496 | 0.181 | 0.089 | 0.230 |
| 15.0 | 15.2 | 14.8 | 0.635 | 1.413 | 10.538 | 0.178 | 0.254 | 0.229 |
| 30.0 | 15.2 | 29.9 | 0.761 | 2.206 | 10.673 | 0.170 | 0.435 | 0.239 |
| 45.0 | 15.2 | 44.9 | 0.556 | 2.744 | 10.861 | 0.152 | 0.594 | 0.271 |
| 60.0 | 15.2 | 59.8 | 0.401 | 2.672 | 11.043 | 0.115 | 0.719 | 0.315 |
| 75.0 | 15.3 | 74.7 | 0.194 | 2.708 | 10.980 | 0.055 | 0.659 | 0.332 |
| 90.0 | 15.3 | 89.6 | 0.074 | 3.050 | 11.162 | 0.020 | 0.681 | 0.307 |
| 105.0 | 15.3 | 104.5 | 0.126 | 3.170 | 11.027 | 0.027 | 0.732 | 0.259 |
| 120.0 | 15.2 | 119.3 | 0.163 | 3.998 | 10.629 | 0.035 | 0.996 | 0.231 |
| 135.0 | 15.2 | 134.6 | 0.208 | 3.784 | 10.373 | 0.039 | 0.964 | 0.186 |
| 150.0 | 15.2 | 149.7 | 0.170 | 2.346 | 10.142 | 0.039 | 0.576 | 0.130 |
| 165.0 | 15.2 | 164.7 | 0.190 | 1.658 | 10.131 | 0.048 | 0.361 | 0.109 |
| 180.0 | 15.3 | 179.7 | 0.170 | 1.377 | 10.090 | 0.038 | 0.168 | 0.089 |
| 195.0 | 15.2 | 194.8 | 0.238 | 2.697 | 10.035 | 0.049 | 0.373 | 0.086 |
| 210.0 | 15.2 | 209.9 | 0.157 | 3.051 | 9.999 | 0.041 | 0.660 | 0.084 |
| 225.0 | 15.2 | 225.2 | 0.202 | 3.523 | 10.111 | 0.041 | 1.086 | 0.102 |
| 240.0 | 15.2 | 240.4 | 0.187 | 3.758 | 10.538 | 0.037 | 1.098 | 0.157 |
| 255.0 | 15.3 | 255.3 | 0.130 | 3.197 | 10.861 | 0.030 | 0.909 | 0.220 |
| 270.0 | 15.3 | 270.2 | 0.079 | 3.161 | 10.948 | 0.022 | 0.826 | 0.300 |
| 285.0 | 15.3 | 285.0 | 0.194 | 3.254 | 11.113 | 0.052 | 0.764 | 0.349 |
| 300.0 | 15.2 | 299.9 | 0.393 | 2.948 | 10.850 | 0.113 | 0.716 | 0.347 |
| 315.0 | 15.2 | 314.7 | 0.529 | 2.481 | 10.850 | 0.152 | 0.561 | 0.296 |
| 330.0 | 15.2 | 329.7 | 0.680 | 1.847 | 10.572 | 0.169 | 0.382 | 0.255 |
| 345.0 | 15.2 | 344.7 | 0.687 | 1.270 | 10.523 | 0.178 | 0.190 | 0.237 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.12: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.801 | 1.137 | 10.869 | 0.197 | 0.106 | 0.301 |
| 15.0 | 20.3 | 14.9 | 0.815 | 1.567 | 10.897 | 0.194 | 0.264 | 0.300 |
| 30.0 | 20.3 | 30.0 | 0.690 | 2.076 | 10.784 | 0.185 | 0.444 | 0.315 |
| 45.0 | 20.3 | 45.0 | 0.568 | 2.720 | 10.915 | 0.165 | 0.609 | 0.346 |
| 60.0 | 20.3 | 59.9 | 0.429 | 3.212 | 11.168 | 0.124 | 0.760 | 0.375 |
| 75.0 | 20.4 | 74.8 | 0.225 | 2.843 | 11.050 | 0.058 | 0.627 | 0.352 |
| 90.0 | 20.4 | 89.8 | 0.096 | 3.091 | 11.130 | 0.026 | 0.641 | 0.302 |
| 105.0 | 20.4 | 104.8 | 0.137 | 3.567 | 10.762 | 0.032 | 0.687 | 0.241 |
| 120.0 | 20.3 | 119.7 | 0.189 | 4.745 | 10.421 | 0.039 | 1.232 | 0.233 |
| 135.0 | 20.3 | 134.8 | 0.160 | 3.376 | 10.025 | 0.042 | 1.001 | 0.157 |
| 150.0 | 20.3 | 149.8 | 0.140 | 2.018 | 10.032 | 0.044 | 0.560 | 0.105 |
| 165.0 | 20.4 | 164.8 | 0.201 | 1.449 | 10.047 | 0.049 | 0.300 | 0.081 |
| 180.0 | 20.4 | 179.9 | 0.184 | 1.706 | 10.018 | 0.050 | 0.177 | 0.077 |
| 195.0 | 20.4 | 194.9 | 0.155 | 2.538 | 9.990 | 0.048 | 0.363 | 0.070 |
| 210.0 | 20.4 | 209.9 | 0.181 | 4.205 | 10.014 | 0.037 | 0.601 | 0.084 |
| 225.0 | 20.4 | 225.0 | 0.132 | 4.104 | 9.955 | 0.034 | 0.867 | 0.086 |
| 240.0 | 20.4 | 240.2 | 0.160 | 4.802 | 10.098 | 0.038 | 1.344 | 0.124 |
| 255.0 | 20.4 | 255.1 | 0.179 | 3.607 | 10.812 | 0.034 | 0.895 | 0.192 |
| 270.0 | 20.4 | 270.1 | 0.098 | 3.171 | 10.860 | 0.028 | 0.806 | 0.289 |
| 285.0 | 20.4 | 285.0 | 0.192 | 3.460 | 11.241 | 0.055 | 0.742 | 0.370 |
| 300.0 | 20.4 | 299.9 | 0.414 | 3.074 | 11.192 | 0.121 | 0.712 | 0.412 |
| 315.0 | 20.3 | 314.8 | 0.591 | 2.463 | 11.005 | 0.163 | 0.534 | 0.378 |
| 330.0 | 20.3 | 329.8 | 0.722 | 2.000 | 10.905 | 0.184 | 0.353 | 0.337 |
| 345.0 | 20.3 | 344.8 | 0.728 | 1.400 | 10.938 | 0.194 | 0.170 | 0.312 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.13: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.757 | 1.364 | 11.210 | 0.212 | 0.127 | 0.430 |
| 15.0 | 25.4 | 15.0 | 0.856 | 1.637 | 11.184 | 0.208 | 0.270 | 0.429 |
| 30.0 | 25.4 | 30.0 | 0.711 | 2.368 | 11.260 | 0.197 | 0.444 | 0.437 |
| 45.0 | 25.4 | 45.0 | 0.652 | 2.648 | 11.220 | 0.175 | 0.610 | 0.455 |
| 60.0 | 25.4 | 60.0 | 0.433 | 3.286 | 11.367 | 0.133 | 0.786 | 0.458 |
| 75.0 | 25.4 | 74.9 | 0.198 | 2.904 | 11.136 | 0.061 | 0.613 | 0.376 |
| 90.0 | 25.4 | 89.9 | 0.113 | 3.027 | 11.072 | 0.032 | 0.620 | 0.294 |
| 105.0 | 25.4 | 104.8 | 0.168 | 3.407 | 10.818 | 0.040 | 0.685 | 0.227 |
| 120.0 | 25.4 | 119.9 | 0.198 | 5.197 | 10.037 | 0.049 | 1.545 | 0.233 |
| 135.0 | 25.4 | 134.9 | 0.161 | 2.723 | 9.967 | 0.052 | 0.984 | 0.127 |
| 150.0 | 25.4 | 149.9 | 0.184 | 2.472 | 9.965 | 0.059 | 0.646 | 0.091 |
| 165.0 | 25.5 | 164.9 | 0.267 | 2.005 | 10.003 | 0.077 | 0.394 | 0.086 |
| 180.0 | 25.6 | 179.9 | 0.203 | 1.533 | 9.930 | 0.059 | 0.130 | 0.042 |
| 195.0 | 25.5 | 195.0 | 0.239 | 2.843 | 10.022 | 0.073 | 0.380 | 0.076 |
| 210.0 | 25.5 | 210.0 | 0.224 | 3.791 | 9.980 | 0.051 | 0.665 | 0.093 |
| 225.0 | 25.4 | 225.0 | 0.150 | 4.733 | 9.942 | 0.043 | 0.976 | 0.113 |
| 240.0 | 25.4 | 240.0 | 0.143 | 4.633 | 9.900 | 0.040 | 1.221 | 0.094 |
| 255.0 | 25.4 | 255.0 | 0.188 | 3.600 | 10.662 | 0.040 | 0.839 | 0.169 |
| 270.0 | 25.4 | 270.0 | 0.127 | 3.182 | 10.847 | 0.034 | 0.761 | 0.279 |
| 285.0 | 25.4 | 285.0 | 0.200 | 3.457 | 11.187 | 0.058 | 0.703 | 0.394 |
| 300.0 | 25.4 | 299.9 | 0.507 | 3.608 | 11.586 | 0.129 | 0.695 | 0.498 |
| 315.0 | 25.4 | 314.9 | 0.643 | 2.639 | 11.390 | 0.173 | 0.502 | 0.486 |
| 330.0 | 25.4 | 329.9 | 0.670 | 2.007 | 11.288 | 0.196 | 0.320 | 0.461 |
| 345.0 | 25.4 | 344.9 | 0.777 | 1.456 | 11.135 | 0.208 | 0.157 | 0.441 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.14: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 0.857 | 1.416 | 11.697 | 0.224 | 0.153 | 0.588 |
| 15.0 | 30.5 | 15.0 | 0.848 | 1.831 | 11.719 | 0.220 | 0.278 | 0.583 |
| 30.0 | 30.5 | 30.0 | 0.714 | 2.333 | 11.804 | 0.208 | 0.436 | 0.580 |
| 45.0 | 30.5 | 45.0 | 0.685 | 3.106 | 11.669 | 0.185 | 0.607 | 0.577 |
| 60.0 | 30.5 | 60.0 | 0.487 | 3.353 | 11.626 | 0.140 | 0.796 | 0.548 |
| 75.0 | 30.5 | 75.0 | 0.201 | 2.721 | 11.113 | 0.065 | 0.592 | 0.403 |
| 90.0 | 30.5 | 89.9 | 0.135 | 2.889 | 11.063 | 0.037 | 0.617 | 0.285 |
| 105.0 | 30.5 | 104.9 | 0.190 | 3.209 | 10.545 | 0.048 | 0.744 | 0.209 |
| 120.0 | 30.5 | 119.9 | 0.239 | 3.913 | 9.946 | 0.056 | 1.331 | 0.177 |
| 135.0 | 30.5 | 134.9 | 0.255 | 3.754 | 9.945 | 0.054 | 0.859 | 0.101 |
| 150.0 | 30.6 | 149.9 | 0.261 | 2.469 | 9.929 | 0.080 | 0.606 | 0.079 |
| 165.0 | 30.6 | 164.9 | 0.296 | 1.944 | 9.895 | 0.093 | 0.341 | 0.054 |
| 180.0 | 31.0 | 179.9 | 0.331 | 2.227 | 9.872 | 0.093 | 0.222 | 0.043 |
| 195.0 | 30.6 | 194.9 | 0.257 | 2.730 | 9.879 | 0.084 | 0.395 | 0.055 |
| 210.0 | 30.6 | 210.0 | 0.231 | 3.190 | 9.889 | 0.072 | 0.625 | 0.076 |
| 225.0 | 30.5 | 225.0 | 0.166 | 4.038 | 9.904 | 0.047 | 0.877 | 0.107 |
| 240.0 | 30.5 | 240.1 | 0.224 | 5.971 | 9.875 | 0.052 | 1.456 | 0.157 |
| 255.0 | 30.5 | 255.0 | 0.166 | 3.621 | 10.466 | 0.048 | 0.775 | 0.147 |
| 270.0 | 30.5 | 270.0 | 0.141 | 3.173 | 10.810 | 0.040 | 0.691 | 0.269 |
| 285.0 | 30.5 | 285.0 | 0.212 | 3.681 | 11.204 | 0.061 | 0.662 | 0.426 |
| 300.0 | 30.5 | 299.9 | 0.465 | 3.164 | 11.609 | 0.135 | 0.669 | 0.580 |
| 315.0 | 30.5 | 314.9 | 0.608 | 2.811 | 11.778 | 0.181 | 0.477 | 0.603 |
| 330.0 | 30.5 | 329.9 | 0.754 | 2.139 | 11.732 | 0.206 | 0.306 | 0.601 |
| 345.0 | 30.5 | 344.9 | 0.860 | 1.580 | 11.744 | 0.219 | 0.163 | 0.593 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.15: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -18.2 | 1.297 | 3.260 | 10.934 | 0.264 | 0.643 | 0.380 |
| 15.0 | -0.3 | -12.9 | 1.218 | 2.579 | 10.834 | 0.262 | 0.511 | 0.358 |
| 30.0 | -0.6 | -3.0 | 1.183 | 2.455 | 10.797 | 0.259 | 0.473 | 0.340 |
| 45.0 | -0.9 | 7.5 | 1.237 | 2.920 | 10.986 | 0.256 | 0.646 | 0.333 |
| 60.0 | -1.2 | 18.4 | 1.124 | 4.596 | 11.062 | 0.255 | 0.973 | 0.356 |
| 75.0 | -1.6 | -14.9 | 1.103 | 6.460 | 12.182 | 0.251 | 1.500 | 0.460 |
| 90.0 | -1.5 | -5.5 | 0.922 | 9.357 | 13.091 | 0.245 | 1.504 | 0.464 |
| 105.0 | -1.3 | -6.7 | 0.938 | 6.912 | 12.545 | 0.250 | 1.433 | 0.439 |
| 120.0 | -1.3 | 47.4 | 1.139 | 10.664 | 13.194 | 0.195 | 1.640 | 0.609 |
| 135.0 | -3.0 | 105.0 | 1.033 | 9.153 | 13.948 | 0.193 | 1.688 | 0.679 |
| 150.0 | -3.7 | 109.0 | 1.089 | 7.490 | 12.734 | 0.207 | 1.597 | 0.638 |
| 165.0 | -4.0 | 106.1 | 0.949 | 9.331 | 13.581 | 0.206 | 1.631 | 0.661 |
| 180.0 | -0.2 | 328.0 | 1.160 | 4.845 | 12.018 | 0.245 | 0.890 | 0.381 |
| 195.0 | -0.2 | 16.8 | 1.077 | 5.573 | 11.947 | 0.258 | 0.915 | 0.427 |
| 210.0 | -0.2 | 385.8 | 1.045 | 4.760 | 11.685 | 0.258 | 0.996 | 0.450 |
| 225.0 | -0.1 | 392.3 | 1.153 | 5.469 | 11.981 | 0.262 | 1.136 | 0.482 |
| 240.0 | 0.0 | 393.2 | 1.087 | 5.121 | 11.953 | 0.262 | 1.259 | 0.527 |
| 255.0 | 0.0 | 386.6 | 1.118 | 5.777 | 12.552 | 0.259 | 1.442 | 0.586 |
| 270.0 | 0.5 | 300.2 | 1.138 | 5.539 | 12.487 | 0.257 | 1.343 | 0.601 |
| 285.0 | 0.3 | 303.6 | 1.061 | 7.078 | 13.409 | 0.262 | 1.282 | 0.572 |
| 300.0 | -0.0 | 309.2 | 1.137 | 5.645 | 13.168 | 0.268 | 1.247 | 0.531 |
| 315.0 | -0.1 | 315.9 | 1.077 | 5.228 | 11.547 | 0.270 | 1.133 | 0.492 |
| 330.0 | -0.3 | 325.3 | 1.278 | 4.493 | 11.329 | 0.262 | 0.946 | 0.436 |
| 345.0 | -0.1 | 333.7 | 1.239 | 3.950 | 11.069 | 0.264 | 0.761 | 0.404 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.16: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.1 | -10.0 | 1.406 | 3.926 | 11.021 | 0.298 | 0.465 | 0.394 |
| 15.0 | 4.0 | -2.0 | 1.411 | 2.217 | 10.865 | 0.295 | 0.391 | 0.380 |
| 30.0 | 3.9 | 8.0 | 1.270 | 2.415 | 10.792 | 0.294 | 0.455 | 0.375 |
| 45.0 | 3.8 | 19.0 | 1.439 | 2.758 | 10.839 | 0.292 | 0.627 | 0.382 |
| 60.0 | 3.8 | 31.1 | 1.201 | 3.827 | 11.006 | 0.291 | 0.834 | 0.406 |
| 75.0 | 3.7 | 38.8 | 1.397 | 4.542 | 11.385 | 0.290 | 0.987 | 0.431 |
| 90.0 | 3.7 | 46.5 | 1.202 | 7.099 | 12.727 | 0.284 | 1.139 | 0.472 |
| 105.0 | 3.7 | 48.9 | 1.144 | 8.566 | 13.719 | 0.281 | 1.188 | 0.493 |
| 120.0 | 3.7 | 46.7 | 1.747 | 9.560 | 12.369 | 0.285 | 1.181 | 0.495 |
| 135.0 | 3.7 | 43.4 | 1.196 | 5.118 | 12.046 | 0.287 | 1.016 | 0.474 |
| 150.0 | 3.8 | 45.4 | 1.126 | 5.448 | 12.801 | 0.286 | 1.044 | 0.487 |
| 165.0 | 3.8 | 49.5 | 1.164 | 5.941 | 12.481 | 0.288 | 1.006 | 0.476 |
| 180.0 | 4.7 | 178.6 | 0.596 | 2.566 | 10.739 | 0.146 | 0.492 | 0.183 |
| 195.0 | 4.6 | 197.3 | 0.573 | 2.856 | 10.891 | 0.149 | 0.634 | 0.211 |
| 210.0 | 4.1 | 368.4 | 1.353 | 6.215 | 12.688 | 0.290 | 0.866 | 0.443 |
| 225.0 | 4.5 | 295.9 | 1.089 | 7.452 | 13.417 | 0.266 | 1.352 | 0.622 |
| 240.0 | 4.7 | 286.9 | 1.121 | 7.887 | 13.375 | 0.235 | 1.492 | 0.760 |
| 255.0 | 4.5 | 289.3 | 1.130 | 7.419 | 13.366 | 0.244 | 1.489 | 0.749 |
| 270.0 | 4.4 | 292.8 | 1.782 | 5.338 | 13.503 | 0.264 | 1.414 | 0.703 |
| 285.0 | 4.5 | 295.6 | 1.104 | 6.490 | 13.491 | 0.273 | 1.400 | 0.666 |
| 300.0 | 4.7 | 302.6 | 1.022 | 5.468 | 12.017 | 0.292 | 1.217 | 0.583 |
| 315.0 | 4.7 | 314.4 | 1.280 | 4.622 | 11.296 | 0.303 | 0.993 | 0.506 |
| 330.0 | 4.6 | 327.1 | 1.295 | 4.231 | 11.042 | 0.303 | 0.769 | 0.454 |
| 345.0 | 4.4 | 340.0 | 1.337 | 2.958 | 11.060 | 0.300 | 0.571 | 0.415 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.17: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.8 | -1.2 | 1.359 | 1.974 | 11.134 | 0.330 | 0.264 | 0.438 |
| 15.0 | 9.7 | 13.7 | 1.470 | 1.824 | 11.014 | 0.328 | 0.348 | 0.432 |
| 30.0 | 9.7 | 28.7 | 1.369 | 2.696 | 11.023 | 0.330 | 0.585 | 0.444 |
| 45.0 | 9.7 | 43.7 | 1.517 | 3.960 | 11.280 | 0.326 | 0.838 | 0.469 |
| 60.0 | 9.7 | 58.2 | 1.094 | 5.431 | 11.886 | 0.307 | 1.108 | 0.556 |
| 75.0 | 9.7 | 71.6 | 1.788 | 6.944 | 13.132 | 0.256 | 1.338 | 0.753 |
| 90.0 | 9.0 | 81.8 | 0.794 | 8.476 | 13.837 | 0.149 | 1.468 | 0.883 |
| 105.0 | 8.6 | 88.7 | 0.778 | 10.536 | 13.624 | 0.085 | 1.654 | 0.876 |
| 120.0 | 8.4 | 100.7 | 0.801 | 9.259 | 13.403 | 0.109 | 1.627 | 0.716 |
| 135.0 | 8.9 | 125.6 | 0.542 | 6.549 | 11.821 | 0.124 | 1.296 | 0.375 |
| 150.0 | 9.4 | 145.7 | 0.426 | 4.053 | 10.622 | 0.110 | 1.271 | 0.247 |
| 165.0 | 9.6 | 162.0 | 0.388 | 4.152 | 10.375 | 0.105 | 1.224 | 0.221 |
| 180.0 | 9.9 | 178.3 | 0.370 | 3.912 | 10.232 | 0.103 | 0.984 | 0.168 |
| 195.0 | 10.0 | 194.6 | 0.430 | 3.164 | 10.595 | 0.105 | 0.764 | 0.123 |
| 210.0 | 9.8 | 211.5 | 0.414 | 3.315 | 10.674 | 0.112 | 1.135 | 0.170 |
| 225.0 | 9.3 | 231.7 | 0.797 | 5.900 | 11.839 | 0.128 | 1.371 | 0.318 |
| 240.0 | 8.5 | 259.3 | 1.870 | 9.762 | 13.576 | 0.141 | 1.644 | 0.713 |
| 255.0 | 8.6 | 269.8 | 1.239 | 10.251 | 14.442 | 0.105 | 1.648 | 0.884 |
| 270.0 | 9.2 | 277.4 | 0.816 | 7.408 | 13.752 | 0.137 | 1.543 | 0.974 |
| 285.0 | 10.0 | 287.5 | 1.264 | 6.281 | 13.195 | 0.256 | 1.373 | 0.876 |
| 300.0 | 10.0 | 300.3 | 1.089 | 4.173 | 11.857 | 0.310 | 1.155 | 0.655 |
| 315.0 | 9.8 | 314.3 | 1.281 | 4.674 | 11.613 | 0.330 | 0.876 | 0.521 |
| 330.0 | 9.8 | 329.1 | 1.436 | 3.864 | 11.349 | 0.334 | 0.579 | 0.476 |
| 345.0 | 9.8 | 343.9 | 1.378 | 2.216 | 11.058 | 0.331 | 0.363 | 0.443 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.18: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.541 | 1.814 | 11.289 | 0.359 | 0.240 | 0.459 |
| 15.0 | 15.0 | 14.6 | 1.471 | 2.070 | 11.211 | 0.359 | 0.352 | 0.459 |
| 30.0 | 15.0 | 29.6 | 1.457 | 2.503 | 11.328 | 0.361 | 0.541 | 0.478 |
| 45.0 | 15.0 | 44.7 | 1.373 | 3.570 | 11.315 | 0.353 | 0.788 | 0.534 |
| 60.0 | 15.0 | 59.4 | 1.110 | 6.634 | 11.874 | 0.324 | 1.059 | 0.674 |
| 75.0 | 15.1 | 73.7 | 1.047 | 7.188 | 13.228 | 0.251 | 1.222 | 0.895 |
| 90.0 | 14.9 | 87.7 | 0.971 | 7.576 | 13.888 | 0.079 | 1.367 | 0.928 |
| 105.0 | 14.8 | 102.4 | 0.557 | 10.232 | 14.150 | 0.100 | 1.514 | 0.653 |
| 120.0 | 14.6 | 116.8 | 0.546 | 7.778 | 13.053 | 0.090 | 1.683 | 0.475 |
| 135.0 | 15.0 | 133.5 | 0.352 | 4.898 | 10.850 | 0.070 | 1.640 | 0.334 |
| 150.0 | 15.0 | 149.2 | 0.281 | 3.879 | 10.401 | 0.083 | 1.229 | 0.232 |
| 165.0 | 15.0 | 164.1 | 0.374 | 3.585 | 10.288 | 0.091 | 0.732 | 0.168 |
| 180.0 | 15.0 | 179.2 | 0.421 | 3.517 | 10.236 | 0.103 | 0.616 | 0.148 |
| 195.0 | 15.1 | 194.4 | 0.395 | 4.383 | 9.957 | 0.083 | 0.735 | 0.117 |
| 210.0 | 15.1 | 209.7 | 0.452 | 4.358 | 10.380 | 0.077 | 1.148 | 0.122 |
| 225.0 | 15.0 | 226.3 | 0.505 | 5.553 | 11.004 | 0.084 | 1.792 | 0.206 |
| 240.0 | 14.6 | 243.5 | 0.791 | 9.260 | 13.314 | 0.105 | 1.849 | 0.403 |
| 255.0 | 14.5 | 258.6 | 1.197 | 11.432 | 14.418 | 0.118 | 1.729 | 0.643 |
| 270.0 | 14.8 | 272.6 | 0.835 | 7.620 | 14.236 | 0.071 | 1.625 | 0.988 |
| 285.0 | 15.2 | 286.1 | 1.080 | 6.899 | 13.218 | 0.248 | 1.384 | 1.003 |
| 300.0 | 15.1 | 300.0 | 1.232 | 5.019 | 12.783 | 0.324 | 1.089 | 0.783 |
| 315.0 | 15.0 | 314.6 | 1.275 | 3.164 | 11.536 | 0.355 | 0.769 | 0.610 |
| 330.0 | 15.0 | 329.5 | 1.421 | 2.508 | 11.550 | 0.361 | 0.513 | 0.520 |
| 345.0 | 15.0 | 344.5 | 1.509 | 2.171 | 11.303 | 0.361 | 0.308 | 0.477 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.19: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.555 | 1.980 | 11.733 | 0.384 | 0.249 | 0.603 |
| 15.0 | 20.2 | 14.8 | 1.482 | 2.264 | 11.842 | 0.384 | 0.352 | 0.602 |
| 30.0 | 20.2 | 29.9 | 1.554 | 3.502 | 11.921 | 0.385 | 0.539 | 0.641 |
| 45.0 | 20.2 | 44.9 | 1.371 | 4.291 | 11.823 | 0.375 | 0.760 | 0.715 |
| 60.0 | 20.2 | 59.7 | 1.203 | 4.632 | 12.343 | 0.340 | 1.007 | 0.849 |
| 75.0 | 20.3 | 74.2 | 1.090 | 7.525 | 13.892 | 0.251 | 1.172 | 1.011 |
| 90.0 | 20.2 | 88.7 | 0.643 | 7.542 | 14.048 | 0.065 | 1.296 | 0.917 |
| 105.0 | 20.1 | 103.7 | 0.565 | 7.593 | 14.050 | 0.087 | 1.555 | 0.600 |
| 120.0 | 20.2 | 118.8 | 0.304 | 6.281 | 11.310 | 0.068 | 2.099 | 0.472 |
| 135.0 | 20.2 | 134.7 | 0.373 | 4.729 | 10.343 | 0.068 | 1.468 | 0.231 |
| 150.0 | 20.3 | 149.6 | 0.506 | 3.645 | 10.144 | 0.088 | 1.055 | 0.154 |
| 165.0 | 20.1 | 164.5 | 0.605 | 3.819 | 10.094 | 0.100 | 0.636 | 0.132 |
| 180.0 | 20.6 | 179.5 | 0.724 | 4.224 | 9.989 | 0.106 | 0.597 | 0.131 |
| 195.0 | 20.1 | 194.4 | 0.668 | 4.682 | 9.989 | 0.099 | 0.857 | 0.169 |
| 210.0 | 20.2 | 209.9 | 0.698 | 5.907 | 9.995 | 0.091 | 1.315 | 0.221 |
| 225.0 | 20.0 | 225.5 | 0.388 | 6.114 | 10.536 | 0.076 | 2.005 | 0.253 |
| 240.0 | 20.2 | 241.0 | 0.369 | 6.801 | 11.248 | 0.077 | 2.392 | 0.297 |
| 255.0 | 19.9 | 256.9 | 0.524 | 12.649 | 13.993 | 0.101 | 1.895 | 0.565 |
| 270.0 | 20.1 | 271.4 | 0.899 | 9.009 | 13.888 | 0.069 | 1.685 | 0.976 |
| 285.0 | 20.3 | 285.7 | 0.986 | 6.598 | 13.799 | 0.244 | 1.417 | 1.113 |
| 300.0 | 20.3 | 300.0 | 1.248 | 3.727 | 12.661 | 0.336 | 1.063 | 0.962 |
| 315.0 | 20.2 | 314.8 | 1.291 | 3.223 | 12.224 | 0.371 | 0.741 | 0.798 |
| 330.0 | 20.2 | 329.7 | 1.460 | 2.540 | 12.069 | 0.384 | 0.487 | 0.701 |
| 345.0 | 20.2 | 344.8 | 1.529 | 1.905 | 12.000 | 0.384 | 0.303 | 0.629 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.20: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 1.483 | 2.096 | 12.636 | 0.401 | 0.288 | 0.846 |
| 15.0 | 25.4 | 14.9 | 1.414 | 2.552 | 12.552 | 0.402 | 0.375 | 0.850 |
| 30.0 | 25.4 | 29.9 | 1.590 | 3.639 | 12.578 | 0.402 | 0.543 | 0.886 |
| 45.0 | 25.3 | 44.9 | 1.606 | 4.250 | 12.596 | 0.391 | 0.745 | 0.951 |
| 60.0 | 25.3 | 59.8 | 1.315 | 5.584 | 12.873 | 0.352 | 0.993 | 1.043 |
| 75.0 | 25.3 | 74.5 | 0.926 | 7.309 | 13.450 | 0.255 | 1.139 | 1.128 |
| 90.0 | 25.3 | 89.2 | 0.709 | 7.872 | 13.895 | 0.066 | 1.281 | 0.911 |
| 105.0 | 25.2 | 104.2 | 0.530 | 9.441 | 12.898 | 0.088 | 1.846 | 0.562 |
| 120.0 | 25.2 | 119.7 | 0.375 | 7.058 | 10.613 | 0.079 | 2.569 | 0.443 |
| 135.0 | 25.2 | 134.7 | 0.376 | 4.666 | 10.213 | 0.091 | 1.695 | 0.216 |
| 150.0 | 25.1 | 149.8 | 0.768 | 3.995 | 10.037 | 0.119 | 1.078 | 0.160 |
| 165.0 | 25.8 | 164.4 | 0.368 | 3.895 | 9.948 | 0.108 | 0.576 | 0.105 |
| 180.0 | 25.6 | 179.8 | 0.503 | 3.950 | 9.932 | 0.113 | 0.573 | 0.115 |
| 195.0 | 25.7 | 195.1 | 0.402 | 4.187 | 9.937 | 0.105 | 0.767 | 0.143 |
| 210.0 | 25.4 | 210.0 | 0.498 | 4.779 | 9.946 | 0.107 | 1.176 | 0.206 |
| 225.0 | 25.2 | 225.3 | 0.464 | 6.754 | 9.997 | 0.091 | 1.897 | 0.311 |
| 240.0 | 25.2 | 240.5 | 0.445 | 7.460 | 11.070 | 0.075 | 2.615 | 0.357 |
| 255.0 | 25.2 | 255.9 | 0.412 | 8.286 | 12.139 | 0.092 | 2.034 | 0.454 |
| 270.0 | 25.3 | 270.9 | 0.611 | 8.660 | 13.660 | 0.070 | 1.725 | 0.951 |
| 285.0 | 25.4 | 285.5 | 0.940 | 7.541 | 13.547 | 0.244 | 1.433 | 1.229 |
| 300.0 | 25.4 | 300.1 | 1.220 | 3.800 | 13.040 | 0.342 | 1.098 | 1.148 |
| 315.0 | 25.4 | 314.9 | 1.531 | 3.299 | 12.901 | 0.384 | 0.763 | 1.030 |
| 330.0 | 25.4 | 329.9 | 1.419 | 2.446 | 13.108 | 0.398 | 0.496 | 0.939 |
| 345.0 | 25.4 | 344.9 | 1.508 | 1.968 | 12.610 | 0.400 | 0.325 | 0.876 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.21: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.401 | 2.387 | 13.609 | 0.413 | 0.340 | 1.109 |
| 15.0 | 30.5 | 15.0 | 1.585 | 2.827 | 13.146 | 0.414 | 0.399 | 1.114 |
| 30.0 | 30.5 | 30.0 | 1.499 | 4.350 | 13.233 | 0.415 | 0.556 | 1.146 |
| 45.0 | 30.5 | 44.9 | 1.443 | 4.714 | 13.195 | 0.402 | 0.752 | 1.193 |
| 60.0 | 30.4 | 59.8 | 1.372 | 4.996 | 13.393 | 0.362 | 0.970 | 1.242 |
| 75.0 | 30.4 | 74.6 | 0.863 | 6.836 | 14.465 | 0.257 | 1.099 | 1.242 |
| 90.0 | 30.4 | 89.4 | 0.469 | 8.096 | 14.144 | 0.069 | 1.272 | 0.893 |
| 105.0 | 30.3 | 104.5 | 0.528 | 8.174 | 12.078 | 0.088 | 2.197 | 0.532 |
| 120.0 | 30.1 | 119.7 | 0.557 | 7.386 | 11.175 | 0.124 | 2.913 | 0.482 |
| 135.0 | 30.2 | 135.0 | 0.978 | 5.654 | 10.392 | 0.128 | 1.589 | 0.229 |
| 150.0 | 30.9 | 148.9 | 0.694 | 4.810 | 9.944 | 0.138 | 1.073 | 0.195 |
| 165.0 | 31.3 | 164.3 | 0.573 | 4.358 | 10.011 | 0.138 | 0.739 | 0.158 |
| 180.0 | 30.3 | 179.5 | 0.997 | 5.078 | 9.989 | 0.155 | 0.849 | 0.193 |
| 195.0 | 31.3 | 195.1 | 0.980 | 4.528 | 10.059 | 0.134 | 0.973 | 0.182 |
| 210.0 | 31.0 | 210.7 | 0.802 | 4.506 | 9.999 | 0.125 | 1.250 | 0.167 |
| 225.0 | 30.3 | 225.1 | 0.919 | 5.913 | 10.305 | 0.123 | 1.655 | 0.283 |
| 240.0 | 30.2 | 240.6 | 0.551 | 8.099 | 12.258 | 0.116 | 2.749 | 0.468 |
| 255.0 | 30.3 | 255.5 | 0.528 | 11.216 | 12.951 | 0.095 | 2.362 | 0.432 |
| 270.0 | 30.4 | 270.6 | 0.576 | 8.493 | 13.679 | 0.075 | 1.676 | 0.927 |
| 285.0 | 30.5 | 285.4 | 1.013 | 6.996 | 14.482 | 0.242 | 1.511 | 1.326 |
| 300.0 | 30.5 | 300.1 | 1.169 | 4.361 | 13.696 | 0.347 | 1.170 | 1.337 |
| 315.0 | 30.5 | 315.1 | 1.551 | 3.401 | 13.921 | 0.392 | 0.846 | 1.264 |
| 330.0 | 30.5 | 330.0 | 1.343 | 2.481 | 13.822 | 0.407 | 0.552 | 1.191 |
| 345.0 | 30.5 | 345.0 | 1.511 | 2.327 | 13.438 | 0.410 | 0.386 | 1.136 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.22: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -19.6 | 0.715 | 2.802 | 10.600 | 0.171 | 0.617 | 0.278 |
| 15.0 | -0.4 | -11.2 | 0.733 | 2.263 | 10.611 | 0.173 | 0.506 | 0.267 |
| 30.0 | -0.6 | -1.8 | 0.757 | 2.230 | 10.502 | 0.174 | 0.488 | 0.260 |
| 45.0 | -0.4 | 17.6 | 0.685 | 3.204 | 10.581 | 0.169 | 0.759 | 0.274 |
| 60.0 | -0.1 | 40.8 | 0.600 | 4.484 | 10.865 | 0.149 | 1.066 | 0.315 |
| 75.0 | 0.1 | 57.8 | 0.505 | 4.673 | 11.074 | 0.115 | 1.190 | 0.349 |
| 90.0 | 0.1 | 74.2 | 0.397 | 4.128 | 11.429 | 0.063 | 1.198 | 0.382 |
| 105.0 | -0.2 | 93.6 | 0.212 | 4.067 | 11.645 | 0.023 | 1.200 | 0.405 |
| 120.0 | -0.6 | 104.0 | 0.354 | 4.882 | 11.555 | 0.052 | 1.218 | 0.400 |
| 135.0 | -1.1 | 111.6 | 0.422 | 4.598 | 11.369 | 0.079 | 1.202 | 0.387 |
| 150.0 | -1.5 | 118.3 | 0.481 | 4.286 | 11.034 | 0.100 | 1.171 | 0.371 |
| 165.0 | -1.8 | 124.3 | 0.545 | 3.676 | 11.187 | 0.116 | 1.112 | 0.355 |
| 180.0 | -1.3 | 86.0 | 0.669 | 3.133 | 11.134 | 0.147 | 1.032 | 0.312 |
| 195.0 | 0.0 | 358.1 | 0.654 | 3.237 | 11.039 | 0.152 | 0.953 | 0.310 |
| 210.0 | 0.3 | 252.3 | 0.535 | 4.291 | 11.230 | 0.072 | 1.174 | 0.397 |
| 225.0 | 0.1 | 258.0 | 0.449 | 4.853 | 11.586 | 0.056 | 1.190 | 0.415 |
| 240.0 | 0.0 | 265.7 | 0.329 | 5.103 | 11.721 | 0.036 | 1.189 | 0.431 |
| 255.0 | 0.1 | 275.9 | 0.242 | 5.000 | 11.831 | 0.033 | 1.171 | 0.436 |
| 270.0 | 0.2 | 287.1 | 0.344 | 5.282 | 11.714 | 0.067 | 1.142 | 0.420 |
| 285.0 | 0.2 | 296.8 | 0.390 | 4.837 | 11.455 | 0.101 | 1.105 | 0.393 |
| 300.0 | 0.2 | 305.4 | 0.472 | 4.352 | 11.217 | 0.126 | 1.055 | 0.366 |
| 315.0 | 0.2 | 314.1 | 0.582 | 3.647 | 11.156 | 0.145 | 0.986 | 0.339 |
| 330.0 | 0.1 | 322.8 | 0.694 | 4.175 | 10.901 | 0.157 | 0.886 | 0.317 |
| 345.0 | -0.1 | 331.6 | 0.713 | 3.695 | 10.717 | 0.165 | 0.762 | 0.296 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.23: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.2 | -13.9 | 0.917 | 2.651 | 10.604 | 0.201 | 0.590 | 0.286 |
| 15.0 | 4.1 | -5.4 | 0.879 | 2.309 | 10.570 | 0.202 | 0.511 | 0.280 |
| 30.0 | 4.0 | 5.6 | 0.838 | 2.396 | 10.715 | 0.201 | 0.543 | 0.282 |
| 45.0 | 4.1 | 24.0 | 0.952 | 3.221 | 10.810 | 0.192 | 0.777 | 0.302 |
| 60.0 | 4.2 | 43.6 | 0.671 | 3.974 | 10.965 | 0.167 | 1.027 | 0.343 |
| 75.0 | 4.3 | 58.6 | 0.501 | 4.302 | 11.270 | 0.126 | 1.133 | 0.379 |
| 90.0 | 4.3 | 73.3 | 0.255 | 3.931 | 11.348 | 0.065 | 1.154 | 0.413 |
| 105.0 | 4.3 | 89.5 | 0.161 | 5.095 | 11.825 | 0.017 | 1.159 | 0.425 |
| 120.0 | 4.2 | 100.7 | 0.304 | 4.468 | 11.595 | 0.034 | 1.154 | 0.412 |
| 135.0 | 4.0 | 109.6 | 0.350 | 4.752 | 11.271 | 0.055 | 1.132 | 0.385 |
| 150.0 | 3.9 | 116.9 | 0.466 | 4.095 | 11.088 | 0.071 | 1.106 | 0.363 |
| 165.0 | 3.8 | 128.1 | 0.558 | 3.747 | 10.951 | 0.090 | 0.994 | 0.323 |
| 180.0 | 3.9 | 149.1 | 0.576 | 2.781 | 10.743 | 0.109 | 0.709 | 0.259 |
| 195.0 | 4.7 | 194.1 | 0.581 | 2.467 | 10.807 | 0.111 | 0.592 | 0.199 |
| 210.0 | 4.6 | 213.1 | 0.482 | 3.196 | 10.723 | 0.105 | 0.808 | 0.223 |
| 225.0 | 4.5 | 232.8 | 0.584 | 4.026 | 11.219 | 0.091 | 1.007 | 0.284 |
| 240.0 | 4.5 | 248.1 | 0.386 | 4.556 | 11.198 | 0.065 | 1.115 | 0.347 |
| 255.0 | 4.7 | 260.6 | 0.225 | 4.510 | 11.449 | 0.036 | 1.147 | 0.401 |
| 270.0 | 4.8 | 273.8 | 0.143 | 4.995 | 11.491 | 0.018 | 1.140 | 0.438 |
| 285.0 | 4.9 | 287.5 | 0.317 | 5.276 | 11.682 | 0.070 | 1.102 | 0.434 |
| 300.0 | 4.9 | 300.8 | 0.606 | 3.981 | 11.646 | 0.128 | 1.041 | 0.394 |
| 315.0 | 4.9 | 313.9 | 0.708 | 3.374 | 10.956 | 0.166 | 0.925 | 0.347 |
| 330.0 | 4.7 | 326.7 | 0.846 | 3.297 | 10.790 | 0.187 | 0.784 | 0.316 |
| 345.0 | 4.5 | 338.6 | 0.811 | 3.151 | 10.778 | 0.197 | 0.660 | 0.297 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.24: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.9 | -1.3 | 0.922 | 1.941 | 10.803 | 0.228 | 0.230 | 0.300 |
| 15.0 | 9.9 | 13.8 | 1.084 | 2.338 | 10.801 | 0.226 | 0.421 | 0.304 |
| 30.0 | 9.9 | 28.9 | 0.916 | 2.880 | 10.739 | 0.214 | 0.653 | 0.318 |
| 45.0 | 9.9 | 43.9 | 0.724 | 3.548 | 11.014 | 0.189 | 0.834 | 0.352 |
| 60.0 | 10.0 | 58.7 | 0.477 | 3.822 | 11.413 | 0.142 | 0.955 | 0.398 |
| 75.0 | 10.1 | 73.5 | 0.295 | 4.331 | 11.560 | 0.072 | 0.956 | 0.440 |
| 90.0 | 10.0 | 88.3 | 0.093 | 4.273 | 11.511 | 0.021 | 0.981 | 0.440 |
| 105.0 | 10.0 | 103.2 | 0.175 | 4.584 | 11.524 | 0.034 | 1.005 | 0.402 |
| 120.0 | 9.7 | 117.3 | 0.280 | 4.793 | 11.385 | 0.054 | 1.040 | 0.358 |
| 135.0 | 9.7 | 132.1 | 0.339 | 4.214 | 11.087 | 0.067 | 0.924 | 0.298 |
| 150.0 | 9.7 | 147.6 | 0.319 | 3.669 | 10.719 | 0.076 | 0.900 | 0.248 |
| 165.0 | 9.8 | 163.1 | 0.350 | 3.398 | 10.485 | 0.080 | 0.815 | 0.215 |
| 180.0 | 9.9 | 178.6 | 0.335 | 2.904 | 10.281 | 0.081 | 0.635 | 0.180 |
| 195.0 | 10.0 | 194.3 | 0.373 | 2.706 | 10.307 | 0.082 | 0.613 | 0.146 |
| 210.0 | 9.9 | 210.5 | 0.419 | 2.930 | 10.637 | 0.079 | 0.888 | 0.162 |
| 225.0 | 9.8 | 226.6 | 0.438 | 3.588 | 11.097 | 0.073 | 1.113 | 0.206 |
| 240.0 | 9.8 | 242.1 | 0.319 | 3.753 | 11.452 | 0.061 | 1.235 | 0.277 |
| 255.0 | 10.0 | 256.5 | 0.219 | 3.998 | 11.530 | 0.042 | 1.211 | 0.347 |
| 270.0 | 10.1 | 271.0 | 0.105 | 4.766 | 11.431 | 0.023 | 1.170 | 0.425 |
| 285.0 | 10.1 | 285.5 | 0.301 | 4.898 | 11.824 | 0.064 | 1.096 | 0.452 |
| 300.0 | 10.1 | 300.0 | 0.545 | 4.273 | 11.359 | 0.137 | 1.006 | 0.427 |
| 315.0 | 10.0 | 314.3 | 0.719 | 3.372 | 10.972 | 0.186 | 0.816 | 0.366 |
| 330.0 | 9.9 | 329.0 | 0.819 | 2.636 | 10.990 | 0.213 | 0.593 | 0.326 |
| 345.0 | 9.9 | 343.8 | 0.973 | 2.382 | 10.798 | 0.223 | 0.367 | 0.305 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.25: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.1 | -0.5 | 0.894 | 1.603 | 10.829 | 0.252 | 0.200 | 0.326 |
| 15.0 | 15.1 | 14.6 | 0.994 | 2.200 | 10.753 | 0.249 | 0.400 | 0.327 |
| 30.0 | 15.1 | 29.7 | 0.863 | 2.973 | 11.112 | 0.235 | 0.638 | 0.346 |
| 45.0 | 15.1 | 44.7 | 0.797 | 3.574 | 11.368 | 0.207 | 0.829 | 0.389 |
| 60.0 | 15.1 | 59.5 | 0.529 | 4.154 | 11.437 | 0.151 | 0.972 | 0.439 |
| 75.0 | 15.2 | 74.4 | 0.301 | 4.068 | 11.889 | 0.073 | 0.887 | 0.461 |
| 90.0 | 15.2 | 89.3 | 0.117 | 4.087 | 11.694 | 0.030 | 0.896 | 0.438 |
| 105.0 | 15.2 | 104.2 | 0.206 | 4.466 | 11.699 | 0.040 | 0.945 | 0.383 |
| 120.0 | 15.1 | 118.8 | 0.275 | 5.259 | 11.178 | 0.052 | 1.212 | 0.367 |
| 135.0 | 15.0 | 134.0 | 0.325 | 4.767 | 10.902 | 0.061 | 1.203 | 0.299 |
| 150.0 | 15.1 | 149.3 | 0.279 | 3.407 | 10.442 | 0.062 | 0.837 | 0.222 |
| 165.0 | 15.2 | 164.4 | 0.233 | 2.517 | 10.239 | 0.057 | 0.438 | 0.165 |
| 180.0 | 15.1 | 179.4 | 0.269 | 2.214 | 10.201 | 0.063 | 0.393 | 0.147 |
| 195.0 | 15.1 | 194.6 | 0.297 | 3.608 | 10.086 | 0.065 | 0.588 | 0.131 |
| 210.0 | 15.1 | 209.9 | 0.289 | 3.971 | 10.025 | 0.060 | 0.935 | 0.122 |
| 225.0 | 15.1 | 225.6 | 0.340 | 4.336 | 10.533 | 0.063 | 1.431 | 0.154 |
| 240.0 | 15.1 | 241.0 | 0.361 | 4.472 | 11.105 | 0.056 | 1.473 | 0.233 |
| 255.0 | 15.2 | 255.6 | 0.246 | 4.724 | 11.399 | 0.045 | 1.304 | 0.303 |
| 270.0 | 15.2 | 270.4 | 0.143 | 4.798 | 11.431 | 0.033 | 1.215 | 0.408 |
| 285.0 | 15.2 | 285.2 | 0.246 | 5.045 | 11.655 | 0.066 | 1.126 | 0.470 |
| 300.0 | 15.2 | 299.8 | 0.534 | 4.458 | 11.455 | 0.147 | 1.015 | 0.478 |
| 315.0 | 15.1 | 314.5 | 0.712 | 3.384 | 11.302 | 0.204 | 0.777 | 0.420 |
| 330.0 | 15.1 | 329.4 | 0.928 | 2.764 | 11.019 | 0.233 | 0.539 | 0.366 |
| 345.0 | 15.1 | 344.4 | 1.070 | 1.922 | 10.902 | 0.248 | 0.303 | 0.337 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.26: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.164 | 1.850 | 11.179 | 0.274 | 0.227 | 0.419 |
| 15.0 | 20.2 | 14.9 | 1.060 | 2.332 | 11.180 | 0.269 | 0.431 | 0.418 |
| 30.0 | 20.2 | 29.9 | 1.003 | 3.269 | 11.311 | 0.255 | 0.662 | 0.437 |
| 45.0 | 20.3 | 44.9 | 0.824 | 3.717 | 11.517 | 0.223 | 0.864 | 0.477 |
| 60.0 | 20.3 | 59.8 | 0.570 | 4.505 | 11.639 | 0.162 | 1.041 | 0.501 |
| 75.0 | 20.3 | 74.7 | 0.289 | 3.679 | 11.645 | 0.077 | 0.858 | 0.485 |
| 90.0 | 20.3 | 89.6 | 0.154 | 3.869 | 11.667 | 0.040 | 0.850 | 0.431 |
| 105.0 | 20.3 | 104.6 | 0.230 | 4.584 | 11.363 | 0.049 | 0.916 | 0.359 |
| 120.0 | 20.3 | 119.4 | 0.277 | 5.197 | 10.722 | 0.060 | 1.550 | 0.366 |
| 135.0 | 20.2 | 134.7 | 0.258 | 4.090 | 10.242 | 0.066 | 1.371 | 0.255 |
| 150.0 | 20.2 | 149.6 | 0.347 | 3.132 | 10.305 | 0.078 | 0.917 | 0.192 |
| 165.0 | 20.3 | 164.7 | 0.314 | 2.430 | 10.253 | 0.072 | 0.439 | 0.142 |
| 180.0 | 20.3 | 179.7 | 0.364 | 2.754 | 10.157 | 0.077 | 0.361 | 0.122 |
| 195.0 | 20.3 | 194.8 | 0.352 | 4.662 | 10.090 | 0.074 | 0.659 | 0.135 |
| 210.0 | 20.2 | 210.0 | 0.266 | 5.266 | 10.068 | 0.070 | 1.106 | 0.169 |
| 225.0 | 20.3 | 224.9 | 0.244 | 5.660 | 9.992 | 0.053 | 1.245 | 0.167 |
| 240.0 | 20.3 | 240.5 | 0.338 | 5.837 | 10.423 | 0.061 | 1.791 | 0.187 |
| 255.0 | 20.3 | 255.3 | 0.304 | 5.027 | 11.430 | 0.052 | 1.326 | 0.267 |
| 270.0 | 20.3 | 270.2 | 0.153 | 4.984 | 11.410 | 0.042 | 1.222 | 0.392 |
| 285.0 | 20.3 | 285.1 | 0.267 | 4.617 | 11.457 | 0.069 | 1.129 | 0.490 |
| 300.0 | 20.3 | 299.8 | 0.548 | 5.598 | 11.718 | 0.156 | 1.014 | 0.551 |
| 315.0 | 20.3 | 314.7 | 0.880 | 3.676 | 11.373 | 0.219 | 0.755 | 0.521 |
| 330.0 | 20.2 | 329.6 | 0.965 | 2.864 | 11.278 | 0.252 | 0.508 | 0.472 |
| 345.0 | 20.2 | 344.7 | 1.179 | 2.139 | 11.292 | 0.269 | 0.269 | 0.437 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.27: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.1 | 1.230 | 2.188 | 11.550 | 0.293 | 0.275 | 0.587 |
| 15.0 | 25.3 | 15.0 | 1.135 | 2.596 | 11.859 | 0.286 | 0.459 | 0.581 |
| 30.0 | 25.3 | 30.0 | 1.051 | 3.389 | 11.511 | 0.272 | 0.687 | 0.589 |
| 45.0 | 25.4 | 45.0 | 0.888 | 4.120 | 11.794 | 0.238 | 0.901 | 0.610 |
| 60.0 | 25.4 | 60.0 | 0.589 | 4.676 | 12.071 | 0.174 | 1.091 | 0.599 |
| 75.0 | 25.4 | 74.8 | 0.316 | 4.443 | 12.270 | 0.081 | 0.858 | 0.507 |
| 90.0 | 25.4 | 89.7 | 0.190 | 3.687 | 11.601 | 0.048 | 0.847 | 0.421 |
| 105.0 | 25.4 | 104.8 | 0.268 | 4.470 | 11.371 | 0.062 | 0.921 | 0.334 |
| 120.0 | 25.3 | 119.8 | 0.378 | 6.194 | 10.334 | 0.075 | 1.812 | 0.340 |
| 135.0 | 25.3 | 134.8 | 0.268 | 4.061 | 10.041 | 0.082 | 1.319 | 0.208 |
| 150.0 | 25.4 | 149.7 | 0.350 | 3.810 | 10.021 | 0.086 | 0.896 | 0.151 |
| 165.0 | 25.6 | 164.8 | 0.278 | 2.393 | 9.998 | 0.080 | 0.413 | 0.094 |
| 180.0 | 25.6 | 179.8 | 0.362 | 2.625 | 10.117 | 0.109 | 0.313 | 0.116 |
| 195.0 | 25.6 | 195.0 | 0.250 | 3.015 | 9.970 | 0.069 | 0.415 | 0.081 |
| 210.0 | 25.4 | 210.1 | 0.325 | 5.145 | 10.067 | 0.091 | 1.106 | 0.217 |
| 225.0 | 25.3 | 225.2 | 0.283 | 6.787 | 9.959 | 0.078 | 1.597 | 0.279 |
| 240.0 | 25.4 | 240.2 | 0.277 | 6.976 | 9.943 | 0.064 | 1.757 | 0.193 |
| 255.0 | 25.4 | 255.1 | 0.299 | 6.518 | 10.798 | 0.061 | 1.283 | 0.238 |
| 270.0 | 25.4 | 270.1 | 0.187 | 4.785 | 11.434 | 0.050 | 1.183 | 0.378 |
| 285.0 | 25.4 | 285.0 | 0.284 | 5.868 | 11.695 | 0.073 | 1.119 | 0.519 |
| 300.0 | 25.4 | 299.8 | 0.556 | 5.111 | 11.766 | 0.166 | 0.991 | 0.651 |
| 315.0 | 25.4 | 314.8 | 0.894 | 3.880 | 11.810 | 0.232 | 0.718 | 0.660 |
| 330.0 | 25.3 | 329.8 | 1.023 | 2.843 | 11.821 | 0.268 | 0.464 | 0.627 |
| 345.0 | 25.3 | 344.8 | 1.286 | 2.304 | 11.735 | 0.286 | 0.269 | 0.599 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.28: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.265 | 2.583 | 12.294 | 0.309 | 0.327 | 0.785 |
| 15.0 | 30.5 | 15.0 | 1.218 | 3.108 | 12.327 | 0.302 | 0.491 | 0.777 |
| 30.0 | 30.5 | 30.1 | 1.222 | 3.774 | 12.406 | 0.285 | 0.694 | 0.773 |
| 45.0 | 30.5 | 45.1 | 0.959 | 3.931 | 12.679 | 0.250 | 0.918 | 0.768 |
| 60.0 | 30.4 | 60.0 | 0.667 | 5.210 | 12.125 | 0.184 | 1.147 | 0.711 |
| 75.0 | 30.5 | 74.9 | 0.273 | 4.133 | 11.854 | 0.086 | 0.866 | 0.536 |
| 90.0 | 30.5 | 89.8 | 0.224 | 3.667 | 11.463 | 0.057 | 0.884 | 0.410 |
| 105.0 | 30.5 | 104.8 | 0.307 | 4.106 | 10.910 | 0.075 | 1.011 | 0.312 |
| 120.0 | 30.4 | 119.9 | 0.362 | 6.068 | 10.036 | 0.095 | 2.063 | 0.326 |
| 135.0 | 30.4 | 134.8 | 0.448 | 5.226 | 9.979 | 0.119 | 1.566 | 0.218 |
| 150.0 | 30.8 | 149.6 | 0.388 | 3.421 | 10.011 | 0.110 | 0.782 | 0.134 |
| 165.0 | 30.8 | 164.7 | 0.625 | 2.698 | 9.961 | 0.135 | 0.486 | 0.098 |
| 180.0 | 30.5 | 179.7 | 0.407 | 3.869 | 9.906 | 0.142 | 0.454 | 0.103 |
| 195.0 | 30.9 | 195.0 | 0.445 | 3.779 | 9.916 | 0.127 | 0.596 | 0.110 |
| 210.0 | 30.7 | 210.1 | 0.363 | 3.852 | 9.942 | 0.096 | 0.867 | 0.136 |
| 225.0 | 30.4 | 225.1 | 0.285 | 5.583 | 10.037 | 0.091 | 1.404 | 0.271 |
| 240.0 | 30.4 | 240.1 | 0.289 | 6.415 | 9.936 | 0.074 | 1.711 | 0.256 |
| 255.0 | 30.5 | 255.1 | 0.277 | 6.398 | 10.826 | 0.072 | 1.195 | 0.219 |
| 270.0 | 30.5 | 270.0 | 0.229 | 4.826 | 11.348 | 0.059 | 1.086 | 0.367 |
| 285.0 | 30.5 | 285.0 | 0.300 | 5.553 | 11.441 | 0.077 | 1.068 | 0.550 |
| 300.0 | 30.5 | 299.9 | 0.617 | 4.896 | 11.981 | 0.175 | 0.956 | 0.759 |
| 315.0 | 30.5 | 314.9 | 0.906 | 3.988 | 12.271 | 0.243 | 0.697 | 0.807 |
| 330.0 | 30.5 | 329.9 | 1.162 | 3.005 | 12.296 | 0.281 | 0.464 | 0.803 |
| 345.0 | 30.5 | 344.9 | 1.184 | 2.492 | 12.363 | 0.302 | 0.313 | 0.794 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.29: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.0 | -32.0 | 1.403 | 6.173 | 12.239 | 0.322 | 1.382 | 0.548 |
| 15.0 | -1.6 | -24.8 | 1.781 | 6.691 | 12.149 | 0.321 | 1.337 | 0.531 |
| 30.0 | -3.1 | -86.6 | 1.479 | 11.689 | 13.398 | 0.282 | 1.958 | 0.719 |
| 45.0 | -3.0 | -71.3 | 1.320 | 8.074 | 13.307 | 0.262 | 2.051 | 0.737 |
| 60.0 | -2.5 | -84.7 | 1.194 | 8.305 | 14.191 | 0.212 | 2.143 | 0.834 |
| 75.0 | -0.5 | -74.5 | 1.533 | 10.081 | 14.679 | 0.162 | 2.132 | 0.865 |
| 90.0 | 0.2 | 62.4 | 1.356 | 9.289 | 13.997 | 0.253 | 1.948 | 0.735 |
| 105.0 | 0.3 | 87.5 | 0.935 | 9.543 | 13.945 | 0.115 | 2.063 | 0.889 |
| 120.0 | -2.6 | 104.1 | 0.985 | 9.266 | 14.255 | 0.173 | 2.095 | 0.873 |
| 135.0 | -3.6 | 108.0 | 0.862 | 11.423 | 14.615 | 0.195 | 2.064 | 0.848 |
| 150.0 | -4.1 | 81.2 | 1.720 | 8.764 | 13.909 | 0.246 | 2.124 | 0.773 |
| 165.0 | -2.9 | 44.8 | 1.652 | 10.608 | 13.834 | 0.291 | 1.843 | 0.650 |
| 180.0 | -1.0 | 11.2 | 1.643 | 5.828 | 12.550 | 0.315 | 1.476 | 0.546 |
| 195.0 | -0.3 | 31.9 | 1.520 | 8.146 | 12.295 | 0.316 | 1.579 | 0.599 |
| 210.0 | 0.2 | 39.3 | 1.295 | 8.237 | 13.054 | 0.313 | 1.679 | 0.634 |
| 225.0 | 0.4 | 273.9 | 1.106 | 12.415 | 13.878 | 0.145 | 2.141 | 0.873 |
| 240.0 | -0.1 | 274.4 | 1.186 | 12.932 | 14.810 | 0.125 | 2.154 | 0.892 |
| 255.0 | 0.5 | 282.3 | 1.102 | 11.685 | 13.952 | 0.173 | 2.058 | 0.869 |
| 270.0 | 0.7 | 288.3 | 1.190 | 10.259 | 14.156 | 0.223 | 1.992 | 0.826 |
| 285.0 | 0.7 | 294.8 | 1.150 | 7.669 | 13.762 | 0.268 | 1.874 | 0.756 |
| 300.0 | 0.5 | 299.8 | 1.244 | 9.161 | 13.162 | 0.288 | 1.792 | 0.717 |
| 315.0 | 0.5 | 306.0 | 1.247 | 8.640 | 12.649 | 0.308 | 1.716 | 0.671 |
| 330.0 | 0.2 | 311.9 | 1.355 | 8.469 | 12.465 | 0.316 | 1.667 | 0.641 |
| 345.0 | -0.0 | 319.7 | 1.559 | 6.793 | 12.913 | 0.325 | 1.489 | 0.593 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.30: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.6 | -32.7 | 1.467 | 6.627 | 12.064 | 0.367 | 1.436 | 0.589 |
| 15.0 | 3.4 | -24.6 | 1.616 | 5.383 | 11.487 | 0.371 | 1.318 | 0.560 |
| 30.0 | 3.3 | -17.7 | 1.685 | 4.827 | 11.496 | 0.375 | 1.255 | 0.544 |
| 45.0 | 3.1 | -10.1 | 1.698 | 4.622 | 11.357 | 0.374 | 1.232 | 0.535 |
| 60.0 | 3.1 | -0.1 | 2.195 | 5.347 | 11.401 | 0.371 | 1.234 | 0.541 |
| 75.0 | 3.2 | 11.7 | 1.715 | 6.787 | 12.405 | 0.356 | 1.408 | 0.569 |
| 90.0 | 3.5 | 35.9 | 1.459 | 7.981 | 14.241 | 0.326 | 1.716 | 0.656 |
| 105.0 | 3.3 | 33.0 | 1.574 | 10.053 | 14.142 | 0.332 | 1.670 | 0.642 |
| 120.0 | 3.7 | 64.9 | 1.612 | 10.891 | 14.854 | 0.244 | 1.927 | 0.803 |
| 135.0 | 3.2 | 33.9 | 1.633 | 12.104 | 13.260 | 0.342 | 1.570 | 0.636 |
| 150.0 | 3.3 | 43.2 | 2.464 | 9.564 | 13.467 | 0.336 | 1.614 | 0.641 |
| 165.0 | 3.4 | 43.8 | 1.617 | 7.019 | 13.062 | 0.344 | 1.542 | 0.618 |
| 180.0 | 3.8 | 96.3 | 1.423 | 7.725 | 12.698 | 0.302 | 1.705 | 0.532 |
| 195.0 | 3.9 | 15.4 | 1.464 | 6.798 | 12.064 | 0.343 | 1.662 | 0.608 |
| 210.0 | 4.1 | 30.3 | 1.580 | 7.654 | 12.878 | 0.340 | 1.693 | 0.647 |
| 225.0 | 4.5 | 276.9 | 1.292 | 12.079 | 14.312 | 0.149 | 2.144 | 0.913 |
| 240.0 | 4.4 | 278.6 | 1.059 | 13.911 | 13.645 | 0.151 | 2.094 | 0.920 |
| 255.0 | 4.3 | 282.7 | 1.486 | 10.793 | 14.375 | 0.178 | 2.098 | 0.919 |
| 270.0 | 4.4 | 288.0 | 1.338 | 9.258 | 14.561 | 0.231 | 1.975 | 0.883 |
| 285.0 | 4.5 | 293.0 | 2.380 | 8.599 | 14.045 | 0.280 | 1.838 | 0.821 |
| 300.0 | 4.6 | 300.8 | 1.499 | 7.609 | 13.313 | 0.318 | 1.715 | 0.729 |
| 315.0 | 4.4 | 308.9 | 1.394 | 7.634 | 12.958 | 0.337 | 1.696 | 0.665 |
| 330.0 | 4.1 | 315.7 | 1.511 | 8.162 | 12.592 | 0.352 | 1.584 | 0.647 |
| 345.0 | 3.9 | 321.6 | 1.529 | 7.102 | 11.932 | 0.362 | 1.523 | 0.612 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.31: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 8.9 | -5.5 | 1.962 | 4.279 | 11.269 | 0.432 | 0.790 | 0.562 |
| 15.0 | 8.6 | 8.2 | 2.390 | 4.261 | 11.454 | 0.428 | 0.874 | 0.552 |
| 30.0 | 8.9 | 25.0 | 2.206 | 5.184 | 11.532 | 0.413 | 1.114 | 0.583 |
| 45.0 | 9.1 | 41.0 | 1.520 | 6.102 | 11.527 | 0.384 | 1.406 | 0.638 |
| 60.0 | 9.3 | 56.0 | 1.214 | 7.884 | 12.825 | 0.339 | 1.633 | 0.733 |
| 75.0 | 9.6 | 70.8 | 1.934 | 8.403 | 14.694 | 0.249 | 1.754 | 0.894 |
| 90.0 | 9.2 | 82.7 | 0.758 | 8.097 | 14.327 | 0.115 | 1.894 | 0.997 |
| 105.0 | 8.9 | 94.7 | 0.657 | 13.922 | 14.963 | 0.075 | 1.946 | 0.946 |
| 120.0 | 8.4 | 107.6 | 0.785 | 11.690 | 14.502 | 0.124 | 1.826 | 0.811 |
| 135.0 | 8.3 | 120.1 | 0.785 | 8.742 | 12.733 | 0.143 | 1.640 | 0.667 |
| 150.0 | 8.3 | 135.6 | 0.773 | 6.580 | 12.560 | 0.151 | 1.477 | 0.519 |
| 165.0 | 8.6 | 154.1 | 0.694 | 5.779 | 11.681 | 0.151 | 1.434 | 0.412 |
| 180.0 | 9.4 | 176.8 | 0.936 | 5.199 | 10.823 | 0.147 | 1.248 | 0.284 |
| 195.0 | 9.5 | 196.0 | 1.338 | 6.115 | 11.379 | 0.156 | 1.167 | 0.231 |
| 210.0 | 9.0 | 219.7 | 0.937 | 7.144 | 12.000 | 0.165 | 1.558 | 0.327 |
| 225.0 | 8.3 | 253.8 | 1.334 | 19.168 | 13.789 | 0.149 | 2.138 | 0.732 |
| 240.0 | 8.4 | 263.7 | 1.227 | 18.895 | 13.409 | 0.118 | 2.222 | 0.864 |
| 255.0 | 8.6 | 271.4 | 1.132 | 13.384 | 14.376 | 0.108 | 2.204 | 0.945 |
| 270.0 | 8.9 | 278.8 | 2.018 | 12.635 | 14.855 | 0.142 | 2.168 | 1.001 |
| 285.0 | 9.7 | 288.4 | 1.200 | 8.896 | 13.464 | 0.241 | 1.994 | 0.949 |
| 300.0 | 9.8 | 300.2 | 1.817 | 7.922 | 13.711 | 0.337 | 1.677 | 0.794 |
| 315.0 | 9.6 | 313.2 | 1.592 | 6.122 | 12.100 | 0.381 | 1.381 | 0.670 |
| 330.0 | 9.4 | 326.9 | 2.119 | 5.582 | 11.834 | 0.409 | 1.161 | 0.612 |
| 345.0 | 9.1 | 340.6 | 1.861 | 5.928 | 11.284 | 0.427 | 0.943 | 0.584 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.32: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.7 | -1.3 | 2.065 | 3.902 | 11.868 | 0.470 | 0.579 | 0.624 |
| 15.0 | 14.7 | 13.9 | 1.963 | 3.749 | 11.784 | 0.466 | 0.752 | 0.611 |
| 30.0 | 14.7 | 29.1 | 1.758 | 4.618 | 11.507 | 0.448 | 1.021 | 0.639 |
| 45.0 | 14.8 | 44.3 | 1.692 | 6.761 | 12.039 | 0.412 | 1.280 | 0.691 |
| 60.0 | 14.9 | 58.9 | 1.292 | 8.017 | 12.924 | 0.355 | 1.552 | 0.837 |
| 75.0 | 15.0 | 73.3 | 0.932 | 7.801 | 13.808 | 0.233 | 1.628 | 0.998 |
| 90.0 | 14.9 | 87.8 | 0.505 | 8.844 | 14.446 | 0.073 | 1.744 | 1.006 |
| 105.0 | 14.9 | 102.9 | 0.776 | 15.909 | 13.866 | 0.095 | 1.792 | 0.816 |
| 120.0 | 14.4 | 116.4 | 0.534 | 6.826 | 12.364 | 0.110 | 1.763 | 0.678 |
| 135.0 | 14.4 | 131.7 | 0.599 | 6.656 | 11.872 | 0.108 | 1.760 | 0.551 |
| 150.0 | 15.1 | 148.7 | 0.681 | 5.122 | 11.195 | 0.115 | 1.350 | 0.367 |
| 165.0 | 15.0 | 163.5 | 0.623 | 4.529 | 10.730 | 0.109 | 0.872 | 0.301 |
| 180.0 | 14.7 | 178.5 | 0.577 | 4.855 | 10.324 | 0.121 | 0.887 | 0.269 |
| 195.0 | 14.7 | 194.2 | 0.825 | 5.555 | 10.850 | 0.124 | 1.086 | 0.221 |
| 210.0 | 15.0 | 209.9 | 0.633 | 5.675 | 10.554 | 0.110 | 1.392 | 0.214 |
| 225.0 | 14.4 | 229.8 | 1.562 | 12.837 | 12.095 | 0.136 | 2.148 | 0.392 |
| 240.0 | 14.0 | 247.1 | 0.866 | 13.774 | 12.866 | 0.134 | 2.336 | 0.575 |
| 255.0 | 14.2 | 260.4 | 0.999 | 19.707 | 14.762 | 0.115 | 2.377 | 0.772 |
| 270.0 | 14.6 | 273.5 | 0.833 | 13.339 | 14.182 | 0.091 | 2.286 | 1.003 |
| 285.0 | 15.0 | 286.7 | 1.205 | 11.082 | 13.750 | 0.231 | 2.102 | 1.046 |
| 300.0 | 15.0 | 300.0 | 1.311 | 6.637 | 13.448 | 0.347 | 1.690 | 0.909 |
| 315.0 | 14.9 | 314.0 | 1.833 | 4.592 | 12.464 | 0.409 | 1.249 | 0.763 |
| 330.0 | 14.8 | 328.7 | 1.777 | 4.119 | 11.818 | 0.444 | 0.906 | 0.690 |
| 345.0 | 14.7 | 343.6 | 2.152 | 3.824 | 11.743 | 0.464 | 0.671 | 0.647 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.33: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.0 | -0.5 | 2.439 | 3.122 | 12.464 | 0.502 | 0.564 | 0.801 |
| 15.0 | 20.0 | 14.6 | 1.997 | 3.842 | 12.132 | 0.494 | 0.756 | 0.786 |
| 30.0 | 20.0 | 29.8 | 1.943 | 5.088 | 12.390 | 0.474 | 1.004 | 0.801 |
| 45.0 | 20.0 | 44.8 | 1.768 | 6.112 | 12.607 | 0.437 | 1.254 | 0.854 |
| 60.0 | 20.1 | 59.5 | 1.551 | 8.817 | 13.493 | 0.371 | 1.515 | 0.980 |
| 75.0 | 20.2 | 74.0 | 1.151 | 9.197 | 15.167 | 0.234 | 1.598 | 1.083 |
| 90.0 | 20.1 | 88.7 | 0.417 | 8.892 | 14.555 | 0.077 | 1.685 | 0.994 |
| 105.0 | 20.1 | 104.0 | 0.778 | 9.630 | 13.750 | 0.099 | 1.863 | 0.748 |
| 120.0 | 19.9 | 118.4 | 0.531 | 6.877 | 12.303 | 0.109 | 2.242 | 0.672 |
| 135.0 | 19.9 | 134.3 | 0.945 | 7.579 | 12.342 | 0.124 | 2.119 | 0.463 |
| 150.0 | 19.9 | 149.2 | 0.721 | 5.161 | 10.788 | 0.133 | 1.286 | 0.298 |
| 165.0 | 20.0 | 164.1 | 0.668 | 4.383 | 10.557 | 0.142 | 0.894 | 0.263 |
| 180.0 | 20.3 | 179.2 | 0.984 | 4.642 | 10.595 | 0.154 | 0.789 | 0.239 |
| 195.0 | 20.2 | 194.7 | 0.671 | 5.761 | 10.204 | 0.134 | 1.100 | 0.268 |
| 210.0 | 20.1 | 210.1 | 0.555 | 6.633 | 10.135 | 0.111 | 1.607 | 0.362 |
| 225.0 | 20.0 | 225.4 | 0.688 | 7.594 | 11.493 | 0.102 | 2.092 | 0.354 |
| 240.0 | 19.8 | 242.3 | 0.791 | 8.530 | 12.819 | 0.125 | 2.655 | 0.430 |
| 255.0 | 19.8 | 257.5 | 0.598 | 16.935 | 13.236 | 0.118 | 2.527 | 0.637 |
| 270.0 | 20.0 | 271.9 | 0.745 | 12.690 | 14.177 | 0.088 | 2.376 | 0.974 |
| 285.0 | 20.2 | 286.0 | 1.166 | 10.236 | 14.035 | 0.227 | 2.172 | 1.135 |
| 300.0 | 20.2 | 299.9 | 1.301 | 8.295 | 13.321 | 0.363 | 1.690 | 1.088 |
| 315.0 | 20.1 | 314.4 | 1.675 | 5.169 | 12.446 | 0.432 | 1.182 | 0.959 |
| 330.0 | 20.1 | 329.3 | 2.051 | 3.943 | 12.461 | 0.471 | 0.861 | 0.881 |
| 345.0 | 20.0 | 344.3 | 1.971 | 3.596 | 12.358 | 0.490 | 0.659 | 0.829 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.34: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 2.130 | 3.599 | 13.226 | 0.522 | 0.624 | 1.079 |
| 15.0 | 25.2 | 14.9 | 2.025 | 4.639 | 13.064 | 0.521 | 0.772 | 1.060 |
| 30.0 | 25.2 | 30.0 | 2.129 | 5.574 | 13.046 | 0.497 | 1.028 | 1.063 |
| 45.0 | 25.2 | 45.0 | 1.976 | 6.607 | 13.327 | 0.458 | 1.245 | 1.094 |
| 60.0 | 25.2 | 59.7 | 1.339 | 7.508 | 14.170 | 0.385 | 1.489 | 1.159 |
| 75.0 | 25.2 | 74.3 | 1.020 | 8.450 | 14.662 | 0.240 | 1.582 | 1.179 |
| 90.0 | 25.2 | 89.1 | 0.609 | 8.521 | 14.484 | 0.087 | 1.710 | 0.978 |
| 105.0 | 25.2 | 104.4 | 0.428 | 7.804 | 12.497 | 0.105 | 2.021 | 0.675 |
| 120.0 | 25.0 | 119.4 | 0.982 | 9.169 | 11.739 | 0.134 | 2.847 | 0.653 |
| 135.0 | 24.9 | 134.0 | 0.743 | 7.002 | 11.516 | 0.148 | 2.078 | 0.393 |
| 150.0 | 25.1 | 149.2 | 0.816 | 6.367 | 10.695 | 0.163 | 1.388 | 0.290 |
| 165.0 | 25.7 | 164.2 | 0.739 | 4.622 | 10.125 | 0.152 | 0.858 | 0.218 |
| 180.0 | 26.2 | 179.6 | 0.647 | 4.414 | 10.043 | 0.167 | 0.683 | 0.189 |
| 195.0 | 25.8 | 195.0 | 0.728 | 4.854 | 10.031 | 0.142 | 0.888 | 0.217 |
| 210.0 | 25.2 | 209.9 | 0.569 | 5.800 | 10.165 | 0.141 | 1.389 | 0.325 |
| 225.0 | 25.0 | 225.4 | 0.617 | 7.261 | 10.138 | 0.116 | 2.186 | 0.464 |
| 240.0 | 25.0 | 240.5 | 0.716 | 9.322 | 12.341 | 0.129 | 3.105 | 0.531 |
| 255.0 | 25.0 | 256.3 | 0.632 | 12.478 | 13.933 | 0.121 | 2.621 | 0.539 |
| 270.0 | 25.1 | 271.1 | 0.804 | 13.452 | 14.687 | 0.101 | 2.459 | 0.926 |
| 285.0 | 25.3 | 285.7 | 0.956 | 10.894 | 14.144 | 0.230 | 2.250 | 1.233 |
| 300.0 | 25.3 | 300.0 | 1.318 | 6.644 | 13.817 | 0.373 | 1.696 | 1.268 |
| 315.0 | 25.3 | 314.7 | 1.812 | 5.546 | 13.624 | 0.447 | 1.220 | 1.198 |
| 330.0 | 25.3 | 329.6 | 2.043 | 3.859 | 13.203 | 0.490 | 0.852 | 1.152 |
| 345.0 | 25.2 | 344.7 | 1.969 | 3.886 | 13.495 | 0.514 | 0.671 | 1.112 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.35: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.0 | 1.940 | 4.320 | 14.147 | 0.534 | 0.700 | 1.396 |
| 15.0 | 30.4 | 15.1 | 2.144 | 4.907 | 14.034 | 0.533 | 0.842 | 1.371 |
| 30.0 | 30.4 | 30.1 | 1.845 | 6.212 | 14.030 | 0.512 | 1.058 | 1.357 |
| 45.0 | 30.4 | 45.0 | 2.086 | 8.236 | 14.067 | 0.473 | 1.265 | 1.345 |
| 60.0 | 30.3 | 59.8 | 1.454 | 6.569 | 14.271 | 0.400 | 1.470 | 1.354 |
| 75.0 | 30.3 | 74.5 | 1.135 | 9.291 | 15.415 | 0.247 | 1.584 | 1.269 |
| 90.0 | 30.3 | 89.3 | 0.908 | 9.893 | 14.655 | 0.100 | 1.813 | 0.962 |
| 105.0 | 30.2 | 104.5 | 1.401 | 16.661 | 13.024 | 0.134 | 2.301 | 0.646 |
| 120.0 | 29.9 | 119.2 | 0.698 | 8.201 | 10.991 | 0.162 | 2.833 | 0.589 |
| 135.0 | 29.6 | 133.6 | 1.198 | 8.199 | 11.948 | 0.224 | 2.310 | 0.454 |
| 150.0 | 30.6 | 148.6 | 1.156 | 5.529 | 10.256 | 0.213 | 1.540 | 0.321 |
| 165.0 | 30.9 | 163.5 | 1.286 | 5.910 | 10.166 | 0.243 | 1.128 | 0.321 |
| 180.0 | 31.5 | 179.1 | 1.475 | 5.788 | 10.072 | 0.243 | 1.052 | 0.309 |
| 195.0 | 31.1 | 194.7 | 1.102 | 5.605 | 10.090 | 0.237 | 1.234 | 0.312 |
| 210.0 | 30.8 | 210.7 | 1.156 | 5.954 | 10.023 | 0.203 | 1.659 | 0.317 |
| 225.0 | 29.7 | 226.5 | 1.026 | 9.152 | 12.091 | 0.224 | 2.520 | 0.549 |
| 240.0 | 30.0 | 240.6 | 0.653 | 8.567 | 12.814 | 0.143 | 2.942 | 0.586 |
| 255.0 | 30.2 | 255.6 | 0.554 | 10.161 | 12.589 | 0.133 | 2.643 | 0.512 |
| 270.0 | 30.3 | 270.7 | 0.892 | 12.098 | 14.747 | 0.112 | 2.450 | 0.889 |
| 285.0 | 30.4 | 285.6 | 1.068 | 13.177 | 14.363 | 0.232 | 2.364 | 1.303 |
| 300.0 | 30.4 | 300.1 | 1.392 | 6.930 | 14.422 | 0.376 | 1.761 | 1.451 |
| 315.0 | 30.4 | 314.9 | 1.865 | 5.396 | 14.148 | 0.459 | 1.270 | 1.457 |
| 330.0 | 30.4 | 329.9 | 2.047 | 4.985 | 13.999 | 0.502 | 0.973 | 1.441 |
| 345.0 | 30.4 | 344.9 | 1.980 | 4.320 | 14.207 | 0.528 | 0.757 | 1.418 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.36: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.2 | -28.3 | 0.974 | 4.180 | 11.264 | 0.188 | 0.973 | 0.358 |
| 15.0 | -2.4 | -147.7 | 0.914 | 4.924 | 11.388 | 0.177 | 1.054 | 0.422 |
| 30.0 | -1.7 | -66.4 | 1.088 | 5.183 | 11.475 | 0.179 | 1.608 | 0.413 |
| 45.0 | -0.1 | 23.7 | 0.888 | 4.403 | 11.372 | 0.196 | 1.104 | 0.396 |
| 60.0 | 0.5 | 48.8 | 0.607 | 5.047 | 11.279 | 0.149 | 1.328 | 0.449 |
| 75.0 | 0.7 | 68.5 | 0.486 | 5.463 | 11.617 | 0.088 | 1.377 | 0.484 |
| 90.0 | 0.2 | 90.5 | 0.216 | 5.199 | 11.880 | 0.028 | 1.387 | 0.515 |
| 105.0 | -0.4 | 103.0 | 0.411 | 5.501 | 11.847 | 0.048 | 1.401 | 0.520 |
| 120.0 | -1.2 | 112.5 | 0.489 | 5.662 | 12.139 | 0.077 | 1.404 | 0.511 |
| 135.0 | -1.9 | 121.3 | 0.452 | 5.410 | 11.722 | 0.109 | 1.356 | 0.494 |
| 150.0 | -2.4 | 131.4 | 0.540 | 4.889 | 11.195 | 0.139 | 1.233 | 0.461 |
| 165.0 | -2.4 | 144.6 | 0.697 | 4.627 | 11.272 | 0.169 | 1.006 | 0.425 |
| 180.0 | -1.6 | 164.4 | 0.792 | 3.747 | 11.197 | 0.186 | 0.601 | 0.375 |
| 195.0 | 0.3 | 233.5 | 0.798 | 5.848 | 11.314 | 0.126 | 1.330 | 0.400 |
| 210.0 | 0.0 | 243.7 | 0.706 | 5.494 | 11.486 | 0.100 | 1.399 | 0.432 |
| 225.0 | -0.2 | 252.5 | 0.514 | 5.507 | 11.606 | 0.074 | 1.434 | 0.457 |
| 240.0 | -0.4 | 261.1 | 0.353 | 5.621 | 11.667 | 0.048 | 1.431 | 0.476 |
| 255.0 | -0.6 | 270.1 | 0.201 | 6.005 | 11.824 | 0.029 | 1.409 | 0.490 |
| 270.0 | -0.6 | 279.8 | 0.342 | 5.940 | 11.888 | 0.041 | 1.373 | 0.485 |
| 285.0 | -0.5 | 289.4 | 0.590 | 5.981 | 11.855 | 0.075 | 1.319 | 0.470 |
| 300.0 | -0.5 | 298.8 | 0.519 | 5.932 | 11.574 | 0.108 | 1.254 | 0.446 |
| 315.0 | -0.4 | 307.9 | 0.685 | 5.360 | 11.273 | 0.138 | 1.184 | 0.420 |
| 330.0 | -0.5 | 317.1 | 0.748 | 5.302 | 11.199 | 0.162 | 1.103 | 0.393 |
| 345.0 | -0.7 | 325.3 | 0.922 | 4.679 | 11.122 | 0.180 | 1.024 | 0.369 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.37: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.8 | -27.9 | 1.019 | 5.101 | 10.846 | 0.221 | 1.040 | 0.369 |
| 15.0 | 3.7 | -20.6 | 0.977 | 4.214 | 10.897 | 0.231 | 0.965 | 0.360 |
| 30.0 | 3.6 | -12.5 | 1.061 | 3.970 | 10.805 | 0.236 | 0.893 | 0.357 |
| 45.0 | 3.6 | -1.5 | 1.253 | 4.128 | 10.848 | 0.238 | 0.859 | 0.366 |
| 60.0 | 3.8 | 23.5 | 0.912 | 4.621 | 11.421 | 0.220 | 1.041 | 0.411 |
| 75.0 | 4.3 | 56.6 | 0.679 | 5.343 | 11.858 | 0.137 | 1.303 | 0.493 |
| 90.0 | 4.4 | 79.3 | 0.274 | 5.373 | 11.868 | 0.044 | 1.309 | 0.531 |
| 105.0 | 4.3 | 95.3 | 0.158 | 5.614 | 12.038 | 0.023 | 1.308 | 0.534 |
| 120.0 | 4.1 | 107.3 | 0.337 | 5.878 | 12.231 | 0.044 | 1.300 | 0.520 |
| 135.0 | 3.8 | 115.8 | 0.341 | 5.839 | 11.668 | 0.066 | 1.279 | 0.499 |
| 150.0 | 3.6 | 125.1 | 0.557 | 5.300 | 11.637 | 0.090 | 1.227 | 0.468 |
| 165.0 | 3.4 | 134.7 | 0.686 | 4.887 | 11.306 | 0.110 | 1.133 | 0.429 |
| 180.0 | 3.4 | 146.6 | 0.871 | 4.362 | 11.247 | 0.127 | 0.982 | 0.379 |
| 195.0 | 3.5 | 165.0 | 0.814 | 4.288 | 11.381 | 0.141 | 0.812 | 0.324 |
| 210.0 | 4.4 | 215.1 | 0.637 | 4.711 | 10.853 | 0.125 | 1.070 | 0.278 |
| 225.0 | 4.3 | 236.0 | 0.526 | 5.139 | 11.616 | 0.097 | 1.285 | 0.348 |
| 240.0 | 4.4 | 249.7 | 0.425 | 5.516 | 11.494 | 0.067 | 1.386 | 0.403 |
| 255.0 | 4.5 | 261.8 | 0.275 | 6.055 | 11.593 | 0.038 | 1.423 | 0.445 |
| 270.0 | 4.6 | 274.3 | 0.116 | 5.731 | 11.933 | 0.021 | 1.407 | 0.481 |
| 285.0 | 4.7 | 287.4 | 0.351 | 6.488 | 11.613 | 0.062 | 1.364 | 0.481 |
| 300.0 | 4.7 | 300.0 | 0.481 | 5.523 | 11.391 | 0.120 | 1.268 | 0.456 |
| 315.0 | 4.5 | 310.9 | 0.700 | 5.297 | 11.507 | 0.166 | 1.186 | 0.423 |
| 330.0 | 4.2 | 318.6 | 0.849 | 5.442 | 11.027 | 0.191 | 1.143 | 0.400 |
| 345.0 | 3.9 | 325.1 | 0.985 | 5.438 | 10.910 | 0.207 | 1.105 | 0.383 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.38: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.4 | -3.3 | 1.195 | 3.385 | 10.854 | 0.273 | 0.569 | 0.379 |
| 15.0 | 9.5 | 11.9 | 1.170 | 3.713 | 11.137 | 0.270 | 0.675 | 0.401 |
| 30.0 | 9.6 | 27.4 | 1.109 | 3.869 | 11.172 | 0.250 | 0.872 | 0.433 |
| 45.0 | 9.7 | 42.6 | 0.812 | 4.834 | 11.580 | 0.208 | 1.051 | 0.474 |
| 60.0 | 9.8 | 57.5 | 0.506 | 5.064 | 11.657 | 0.148 | 1.142 | 0.516 |
| 75.0 | 9.9 | 72.9 | 0.380 | 4.916 | 12.439 | 0.074 | 1.081 | 0.540 |
| 90.0 | 9.9 | 88.0 | 0.134 | 5.158 | 11.963 | 0.030 | 1.091 | 0.541 |
| 105.0 | 9.9 | 103.1 | 0.191 | 5.509 | 11.944 | 0.039 | 1.111 | 0.511 |
| 120.0 | 9.5 | 116.6 | 0.404 | 5.554 | 12.173 | 0.059 | 1.104 | 0.486 |
| 135.0 | 9.3 | 130.6 | 0.588 | 5.001 | 11.933 | 0.076 | 0.982 | 0.422 |
| 150.0 | 9.2 | 144.9 | 0.535 | 4.423 | 11.283 | 0.088 | 0.959 | 0.367 |
| 165.0 | 9.1 | 159.5 | 0.520 | 3.800 | 11.051 | 0.099 | 0.940 | 0.324 |
| 180.0 | 9.4 | 176.8 | 0.517 | 4.083 | 10.499 | 0.103 | 0.900 | 0.273 |
| 195.0 | 9.7 | 193.7 | 0.677 | 4.353 | 10.597 | 0.104 | 0.906 | 0.209 |
| 210.0 | 9.6 | 211.3 | 0.700 | 4.913 | 10.884 | 0.096 | 1.082 | 0.212 |
| 225.0 | 9.6 | 228.1 | 0.562 | 6.665 | 10.990 | 0.089 | 1.403 | 0.251 |
| 240.0 | 9.6 | 243.4 | 0.501 | 5.823 | 11.546 | 0.071 | 1.530 | 0.323 |
| 255.0 | 9.9 | 257.2 | 0.355 | 6.068 | 11.848 | 0.050 | 1.532 | 0.385 |
| 270.0 | 9.9 | 271.4 | 0.206 | 6.810 | 11.836 | 0.033 | 1.527 | 0.454 |
| 285.0 | 10.0 | 285.7 | 0.296 | 7.073 | 11.710 | 0.058 | 1.440 | 0.485 |
| 300.0 | 9.9 | 299.9 | 0.503 | 5.421 | 11.407 | 0.131 | 1.281 | 0.483 |
| 315.0 | 9.8 | 313.7 | 0.892 | 5.145 | 11.432 | 0.194 | 1.072 | 0.441 |
| 330.0 | 9.7 | 327.8 | 1.015 | 4.629 | 10.925 | 0.237 | 0.867 | 0.402 |
| 345.0 | 9.5 | 342.0 | 1.152 | 3.806 | 10.859 | 0.262 | 0.661 | 0.381 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.39: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.9 | -1.1 | 1.312 | 3.212 | 11.159 | 0.304 | 0.449 | 0.419 |
| 15.0 | 14.9 | 14.1 | 1.253 | 3.500 | 11.129 | 0.298 | 0.621 | 0.432 |
| 30.0 | 14.9 | 29.2 | 1.091 | 4.343 | 11.551 | 0.273 | 0.857 | 0.464 |
| 45.0 | 15.0 | 44.2 | 0.866 | 5.085 | 11.693 | 0.224 | 1.023 | 0.504 |
| 60.0 | 15.0 | 59.0 | 0.615 | 5.434 | 12.441 | 0.154 | 1.138 | 0.549 |
| 75.0 | 15.1 | 74.0 | 0.397 | 5.578 | 12.728 | 0.076 | 0.975 | 0.552 |
| 90.0 | 15.1 | 89.0 | 0.167 | 4.861 | 12.224 | 0.044 | 0.980 | 0.534 |
| 105.0 | 15.1 | 104.1 | 0.351 | 5.089 | 11.703 | 0.055 | 1.018 | 0.481 |
| 120.0 | 14.9 | 118.4 | 0.446 | 5.814 | 12.092 | 0.071 | 1.200 | 0.490 |
| 135.0 | 14.9 | 133.6 | 0.338 | 4.976 | 11.071 | 0.082 | 1.153 | 0.417 |
| 150.0 | 14.9 | 148.7 | 0.385 | 4.078 | 10.802 | 0.088 | 0.825 | 0.335 |
| 165.0 | 14.9 | 163.7 | 0.497 | 3.747 | 10.672 | 0.095 | 0.681 | 0.281 |
| 180.0 | 15.0 | 178.9 | 0.408 | 3.642 | 10.320 | 0.089 | 0.622 | 0.239 |
| 195.0 | 15.0 | 194.3 | 0.596 | 5.162 | 10.230 | 0.095 | 0.843 | 0.210 |
| 210.0 | 15.0 | 209.9 | 0.482 | 5.227 | 10.252 | 0.084 | 1.196 | 0.194 |
| 225.0 | 14.9 | 226.0 | 0.528 | 5.562 | 10.572 | 0.085 | 1.652 | 0.197 |
| 240.0 | 14.9 | 241.6 | 0.577 | 6.012 | 11.350 | 0.075 | 1.817 | 0.256 |
| 255.0 | 15.1 | 256.0 | 0.321 | 6.375 | 11.651 | 0.061 | 1.726 | 0.341 |
| 270.0 | 15.1 | 270.7 | 0.224 | 6.752 | 11.871 | 0.047 | 1.664 | 0.435 |
| 285.0 | 15.2 | 285.3 | 0.369 | 6.492 | 11.945 | 0.061 | 1.569 | 0.496 |
| 300.0 | 15.1 | 299.9 | 0.573 | 6.438 | 11.596 | 0.138 | 1.352 | 0.523 |
| 315.0 | 15.0 | 314.3 | 0.777 | 5.264 | 11.435 | 0.212 | 1.047 | 0.490 |
| 330.0 | 14.9 | 328.9 | 1.107 | 4.313 | 11.163 | 0.264 | 0.763 | 0.454 |
| 345.0 | 14.9 | 343.8 | 1.245 | 3.658 | 11.120 | 0.292 | 0.553 | 0.424 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.40: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.1 | -0.5 | 1.381 | 3.310 | 11.440 | 0.332 | 0.472 | 0.520 |
| 15.0 | 20.1 | 14.7 | 1.279 | 3.656 | 11.536 | 0.324 | 0.684 | 0.525 |
| 30.0 | 20.1 | 29.8 | 1.143 | 4.369 | 11.484 | 0.295 | 0.939 | 0.547 |
| 45.0 | 20.1 | 44.7 | 1.062 | 4.896 | 11.804 | 0.242 | 1.110 | 0.574 |
| 60.0 | 20.2 | 59.6 | 0.641 | 5.383 | 12.184 | 0.163 | 1.266 | 0.606 |
| 75.0 | 20.3 | 74.4 | 0.293 | 5.091 | 12.138 | 0.081 | 0.974 | 0.569 |
| 90.0 | 20.3 | 89.4 | 0.216 | 4.651 | 11.931 | 0.058 | 0.951 | 0.521 |
| 105.0 | 20.3 | 104.5 | 0.367 | 5.035 | 11.926 | 0.073 | 0.967 | 0.443 |
| 120.0 | 20.1 | 119.2 | 0.341 | 5.620 | 11.108 | 0.089 | 1.560 | 0.488 |
| 135.0 | 20.1 | 134.4 | 0.514 | 5.430 | 10.852 | 0.100 | 1.357 | 0.381 |
| 150.0 | 20.1 | 149.3 | 0.603 | 5.283 | 10.587 | 0.114 | 0.952 | 0.313 |
| 165.0 | 20.2 | 164.4 | 0.598 | 2.992 | 10.517 | 0.113 | 0.572 | 0.245 |
| 180.0 | 20.2 | 179.5 | 0.365 | 3.539 | 10.192 | 0.103 | 0.535 | 0.209 |
| 195.0 | 20.2 | 194.6 | 0.397 | 5.201 | 10.169 | 0.094 | 0.753 | 0.228 |
| 210.0 | 20.2 | 209.9 | 0.598 | 6.881 | 10.077 | 0.093 | 1.257 | 0.293 |
| 225.0 | 20.2 | 225.0 | 0.507 | 6.960 | 10.053 | 0.081 | 1.471 | 0.252 |
| 240.0 | 20.1 | 240.7 | 0.514 | 7.503 | 10.239 | 0.086 | 2.062 | 0.237 |
| 255.0 | 20.2 | 255.5 | 0.460 | 7.747 | 11.018 | 0.074 | 1.821 | 0.324 |
| 270.0 | 20.3 | 270.4 | 0.280 | 7.694 | 11.806 | 0.059 | 1.746 | 0.432 |
| 285.0 | 20.3 | 285.2 | 0.355 | 7.594 | 11.705 | 0.065 | 1.645 | 0.513 |
| 300.0 | 20.2 | 299.8 | 0.720 | 7.441 | 12.247 | 0.147 | 1.401 | 0.578 |
| 315.0 | 20.2 | 314.5 | 0.928 | 5.434 | 11.484 | 0.231 | 1.058 | 0.582 |
| 330.0 | 20.1 | 329.4 | 1.259 | 4.409 | 11.534 | 0.288 | 0.741 | 0.555 |
| 345.0 | 20.1 | 344.4 | 1.436 | 3.539 | 11.367 | 0.319 | 0.499 | 0.531 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.41: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 1.540 | 3.737 | 12.044 | 0.354 | 0.559 | 0.697 |
| 15.0 | 25.2 | 14.9 | 1.457 | 4.271 | 12.511 | 0.345 | 0.764 | 0.697 |
| 30.0 | 25.2 | 30.0 | 1.266 | 4.974 | 12.232 | 0.316 | 1.012 | 0.701 |
| 45.0 | 25.2 | 45.0 | 1.010 | 5.535 | 12.315 | 0.258 | 1.240 | 0.690 |
| 60.0 | 25.3 | 59.8 | 0.626 | 6.214 | 12.156 | 0.173 | 1.371 | 0.664 |
| 75.0 | 25.3 | 74.6 | 0.415 | 5.223 | 12.673 | 0.087 | 1.042 | 0.584 |
| 90.0 | 25.3 | 89.6 | 0.263 | 4.595 | 11.891 | 0.071 | 1.000 | 0.509 |
| 105.0 | 25.3 | 104.6 | 0.430 | 4.865 | 11.520 | 0.092 | 0.949 | 0.397 |
| 120.0 | 25.2 | 119.6 | 0.419 | 6.050 | 10.772 | 0.110 | 1.783 | 0.448 |
| 135.0 | 25.2 | 134.5 | 0.351 | 4.688 | 10.238 | 0.117 | 1.250 | 0.304 |
| 150.0 | 25.3 | 149.5 | 0.534 | 4.914 | 10.246 | 0.141 | 1.188 | 0.269 |
| 165.0 | 25.5 | 164.5 | 0.479 | 3.375 | 10.237 | 0.155 | 0.651 | 0.233 |
| 180.0 | 25.6 | 179.7 | 0.595 | 3.079 | 10.147 | 0.116 | 0.324 | 0.141 |
| 195.0 | 25.6 | 195.1 | 0.488 | 4.407 | 10.183 | 0.146 | 0.718 | 0.227 |
| 210.0 | 25.3 | 210.0 | 0.588 | 6.108 | 10.194 | 0.113 | 1.139 | 0.296 |
| 225.0 | 25.2 | 225.2 | 0.824 | 7.987 | 10.024 | 0.116 | 1.856 | 0.429 |
| 240.0 | 25.3 | 240.2 | 0.551 | 8.440 | 10.046 | 0.097 | 2.067 | 0.327 |
| 255.0 | 25.3 | 255.2 | 0.435 | 8.532 | 10.926 | 0.086 | 1.776 | 0.338 |
| 270.0 | 25.3 | 270.2 | 0.266 | 7.065 | 11.701 | 0.069 | 1.740 | 0.433 |
| 285.0 | 25.3 | 285.1 | 0.350 | 7.975 | 11.707 | 0.072 | 1.711 | 0.543 |
| 300.0 | 25.3 | 299.8 | 0.582 | 6.795 | 11.708 | 0.155 | 1.389 | 0.652 |
| 315.0 | 25.3 | 314.7 | 0.966 | 5.447 | 11.946 | 0.247 | 1.028 | 0.705 |
| 330.0 | 25.3 | 329.6 | 1.291 | 4.566 | 12.186 | 0.307 | 0.721 | 0.716 |
| 345.0 | 25.2 | 344.7 | 1.551 | 3.715 | 12.057 | 0.341 | 0.524 | 0.705 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.42: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.1 | 1.554 | 4.439 | 12.863 | 0.372 | 0.658 | 0.913 |
| 15.0 | 30.4 | 15.0 | 1.549 | 5.469 | 12.797 | 0.364 | 0.864 | 0.906 |
| 30.0 | 30.4 | 30.1 | 1.427 | 5.749 | 12.624 | 0.335 | 1.085 | 0.897 |
| 45.0 | 30.4 | 45.1 | 1.151 | 5.766 | 12.698 | 0.279 | 1.295 | 0.845 |
| 60.0 | 30.4 | 60.0 | 0.721 | 6.399 | 12.690 | 0.186 | 1.499 | 0.757 |
| 75.0 | 30.4 | 74.7 | 0.364 | 4.844 | 11.940 | 0.094 | 1.142 | 0.603 |
| 90.0 | 30.4 | 89.7 | 0.371 | 4.795 | 11.858 | 0.084 | 1.118 | 0.502 |
| 105.0 | 30.4 | 104.7 | 0.537 | 5.010 | 11.542 | 0.111 | 1.020 | 0.368 |
| 120.0 | 30.3 | 119.8 | 0.584 | 6.589 | 10.280 | 0.135 | 2.089 | 0.416 |
| 135.0 | 30.3 | 134.5 | 0.567 | 5.283 | 10.166 | 0.153 | 1.631 | 0.305 |
| 150.0 | 30.5 | 149.5 | 0.614 | 4.421 | 10.123 | 0.183 | 1.104 | 0.249 |
| 165.0 | 30.8 | 164.5 | 0.705 | 3.847 | 10.106 | 0.188 | 0.582 | 0.175 |
| 180.0 | 30.5 | 179.4 | 0.907 | 4.096 | 10.001 | 0.196 | 0.507 | 0.165 |
| 195.0 | 31.1 | 194.9 | 0.592 | 4.369 | 9.982 | 0.165 | 0.672 | 0.172 |
| 210.0 | 30.7 | 210.2 | 0.595 | 5.387 | 10.077 | 0.170 | 1.115 | 0.279 |
| 225.0 | 30.4 | 225.0 | 0.522 | 6.299 | 10.093 | 0.122 | 1.493 | 0.381 |
| 240.0 | 30.4 | 240.0 | 0.443 | 7.780 | 10.046 | 0.106 | 1.716 | 0.364 |
| 255.0 | 30.4 | 255.1 | 0.493 | 7.910 | 10.935 | 0.104 | 1.605 | 0.356 |
| 270.0 | 30.4 | 270.1 | 0.334 | 7.408 | 11.579 | 0.082 | 1.654 | 0.445 |
| 285.0 | 30.4 | 285.1 | 0.340 | 8.423 | 12.035 | 0.078 | 1.672 | 0.579 |
| 300.0 | 30.4 | 299.8 | 0.643 | 7.804 | 12.378 | 0.166 | 1.386 | 0.729 |
| 315.0 | 30.4 | 314.8 | 1.028 | 5.856 | 12.572 | 0.263 | 0.988 | 0.861 |
| 330.0 | 30.4 | 329.8 | 1.437 | 5.343 | 12.767 | 0.328 | 0.744 | 0.910 |
| 345.0 | 30.4 | 344.9 | 1.529 | 4.339 | 12.939 | 0.360 | 0.603 | 0.918 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.43: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.9 | -362.1 | 1.793 | 8.632 | 13.187 | 0.295 | 2.550 | 0.827 |
| 15.0 | -1.3 | -366.1 | 1.976 | 9.215 | 13.737 | 0.337 | 2.529 | 0.755 |
| 30.0 | -4.3 | 98.6 | 1.772 | 8.748 | 13.706 | 0.340 | 2.284 | 0.905 |
| 45.0 | -4.6 | -120.5 | 1.763 | 9.562 | 13.748 | 0.313 | 2.228 | 0.965 |
| 60.0 | 1.3 | 32.4 | 2.577 | 8.331 | 13.763 | 0.325 | 2.314 | 0.929 |
| 75.0 | 2.5 | 77.1 | 1.540 | 10.353 | 15.438 | 0.185 | 2.022 | 1.027 |
| 90.0 | 1.1 | 99.2 | 1.789 | 10.027 | 15.197 | 0.134 | 2.055 | 1.059 |
| 105.0 | -1.8 | 109.2 | 1.926 | 8.374 | 15.258 | 0.183 | 2.135 | 1.082 |
| 120.0 | -4.6 | 118.2 | 1.136 | 9.402 | 14.771 | 0.240 | 2.150 | 1.059 |
| 135.0 | -5.7 | 125.8 | 1.749 | 12.037 | 14.010 | 0.295 | 2.060 | 1.035 |
| 150.0 | -3.9 | 322.4 | 2.213 | 10.442 | 13.786 | 0.339 | 2.370 | 0.864 |
| 165.0 | -3.4 | 324.2 | 2.536 | 9.420 | 14.282 | 0.347 | 2.457 | 0.813 |
| 180.0 | -2.2 | 783.2 | 1.594 | 9.077 | 13.194 | 0.308 | 2.617 | 0.827 |
| 195.0 | -2.6 | 28.5 | 2.866 | 9.449 | 15.626 | 0.313 | 2.527 | 0.793 |
| 210.0 | -0.5 | 260.7 | 1.401 | 12.213 | 14.059 | 0.164 | 2.593 | 0.864 |
| 225.0 | -1.1 | 262.1 | 1.206 | 13.183 | 13.395 | 0.140 | 2.612 | 0.861 |
| 240.0 | -1.8 | 266.7 | 0.905 | 13.679 | 13.251 | 0.110 | 2.602 | 0.877 |
| 255.0 | -2.4 | 272.0 | 1.109 | 12.915 | 13.714 | 0.099 | 2.572 | 0.877 |
| 270.0 | -2.4 | 277.0 | 1.325 | 12.264 | 15.306 | 0.122 | 2.443 | 0.867 |
| 285.0 | -2.2 | 281.9 | 1.506 | 12.116 | 15.755 | 0.168 | 2.355 | 0.853 |
| 300.0 | -1.4 | 288.1 | 1.159 | 11.972 | 14.768 | 0.205 | 2.288 | 0.821 |
| 315.0 | -1.7 | 292.9 | 1.333 | 11.557 | 14.857 | 0.242 | 2.246 | 0.803 |
| 330.0 | -1.9 | 298.9 | 1.764 | 10.903 | 13.778 | 0.284 | 2.181 | 0.769 |
| 345.0 | -2.1 | 151.1 | 1.761 | 10.105 | 13.629 | 0.302 | 2.320 | 0.758 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.44: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.8 | -48.0 | 1.776 | 12.813 | 13.215 | 0.366 | 2.098 | 0.728 |
| 15.0 | 2.1 | -79.8 | 2.252 | 10.752 | 14.126 | 0.327 | 2.615 | 0.805 |
| 30.0 | 2.2 | -120.7 | 1.930 | 9.588 | 13.809 | 0.217 | 2.104 | 0.952 |
| 45.0 | 2.8 | -101.7 | 1.747 | 10.741 | 14.322 | 0.233 | 2.321 | 0.971 |
| 60.0 | 3.6 | -92.5 | 2.437 | 9.138 | 14.010 | 0.207 | 2.324 | 1.000 |
| 75.0 | 4.3 | -74.4 | 2.432 | 18.279 | 15.019 | 0.184 | 2.476 | 1.029 |
| 90.0 | 5.1 | 89.4 | 3.397 | 21.114 | 15.531 | 0.105 | 2.009 | 1.069 |
| 105.0 | 4.4 | 103.8 | 1.669 | 8.089 | 14.772 | 0.124 | 1.965 | 1.036 |
| 120.0 | 3.4 | 112.7 | 1.234 | 10.389 | 14.951 | 0.161 | 1.982 | 1.017 |
| 135.0 | 2.5 | 120.3 | 1.247 | 9.323 | 16.253 | 0.192 | 1.986 | 0.987 |
| 150.0 | 2.0 | 128.7 | 1.254 | 9.209 | 15.408 | 0.222 | 1.932 | 0.921 |
| 165.0 | 1.5 | 132.3 | 1.608 | 10.596 | 13.457 | 0.238 | 1.957 | 0.885 |
| 180.0 | 2.2 | 82.9 | 2.068 | 10.222 | 12.962 | 0.323 | 2.632 | 0.724 |
| 195.0 | 3.5 | 364.1 | 1.962 | 11.438 | 13.717 | 0.308 | 2.593 | 0.762 |
| 210.0 | 4.2 | 258.4 | 2.019 | 17.657 | 14.086 | 0.168 | 2.580 | 0.817 |
| 225.0 | 3.7 | 262.3 | 1.473 | 17.267 | 13.415 | 0.150 | 2.650 | 0.816 |
| 240.0 | 3.3 | 267.8 | 2.636 | 15.861 | 14.038 | 0.144 | 2.645 | 0.862 |
| 255.0 | 3.8 | 275.6 | 1.236 | 14.175 | 13.327 | 0.098 | 2.552 | 0.877 |
| 270.0 | 3.6 | 281.8 | 2.088 | 12.575 | 13.868 | 0.147 | 2.508 | 0.875 |
| 285.0 | 4.1 | 288.6 | 1.376 | 11.723 | 13.576 | 0.197 | 2.375 | 0.839 |
| 300.0 | 3.9 | 294.7 | 1.289 | 14.449 | 13.365 | 0.256 | 2.254 | 0.802 |
| 315.0 | 3.5 | 298.7 | 1.528 | 12.680 | 12.689 | 0.291 | 2.211 | 0.793 |
| 330.0 | 3.3 | 303.3 | 1.768 | 13.426 | 12.532 | 0.326 | 2.169 | 0.761 |
| 345.0 | 2.9 | 307.7 | 1.838 | 13.031 | 14.041 | 0.350 | 2.137 | 0.744 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.45: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.5 | -40.9 | 2.114 | 10.686 | 12.952 | 0.439 | 2.134 | 0.753 |
| 15.0 | 7.3 | -34.1 | 2.444 | 8.350 | 12.505 | 0.460 | 2.050 | 0.747 |
| 30.0 | 7.2 | -24.6 | 2.401 | 8.930 | 11.951 | 0.476 | 1.923 | 0.722 |
| 45.0 | 7.2 | -15.9 | 2.966 | 6.828 | 12.581 | 0.484 | 1.878 | 0.725 |
| 60.0 | 7.2 | 1.8 | 2.963 | 8.207 | 12.245 | 0.490 | 1.740 | 0.742 |
| 75.0 | 9.8 | 71.2 | 1.833 | 7.847 | 14.925 | 0.220 | 1.815 | 1.067 |
| 90.0 | 9.8 | 88.5 | 0.914 | 9.806 | 15.601 | 0.076 | 1.828 | 1.069 |
| 105.0 | 9.6 | 104.5 | 1.247 | 7.262 | 13.868 | 0.104 | 1.799 | 0.958 |
| 120.0 | 8.9 | 116.0 | 4.151 | 13.464 | 14.204 | 0.175 | 1.790 | 0.897 |
| 135.0 | 8.1 | 126.4 | 1.800 | 9.910 | 14.383 | 0.167 | 1.605 | 0.810 |
| 150.0 | 7.7 | 135.1 | 2.232 | 9.735 | 15.066 | 0.178 | 1.592 | 0.759 |
| 165.0 | 7.4 | 144.3 | 1.536 | 9.074 | 13.800 | 0.190 | 1.720 | 0.707 |
| 180.0 | 7.4 | 154.7 | 1.550 | 7.041 | 12.453 | 0.205 | 1.604 | 0.625 |
| 195.0 | 8.9 | 199.1 | 1.619 | 9.461 | 11.214 | 0.217 | 1.706 | 0.365 |
| 210.0 | 8.3 | 237.7 | 2.343 | 15.170 | 12.112 | 0.232 | 2.485 | 0.558 |
| 225.0 | 8.3 | 253.6 | 2.164 | 20.477 | 12.921 | 0.179 | 2.653 | 0.705 |
| 240.0 | 8.3 | 261.0 | 1.311 | 17.787 | 13.606 | 0.139 | 2.661 | 0.779 |
| 255.0 | 8.4 | 270.4 | 1.151 | 15.536 | 13.860 | 0.099 | 2.721 | 0.852 |
| 270.0 | 8.6 | 278.9 | 2.704 | 13.330 | 13.540 | 0.150 | 2.710 | 0.883 |
| 285.0 | 9.1 | 288.4 | 2.130 | 13.506 | 13.337 | 0.208 | 2.534 | 0.869 |
| 300.0 | 9.3 | 299.0 | 1.854 | 12.411 | 12.907 | 0.308 | 2.222 | 0.815 |
| 315.0 | 8.4 | 306.6 | 1.571 | 10.714 | 12.755 | 0.370 | 2.102 | 0.766 |
| 330.0 | 7.9 | 309.6 | 1.956 | 10.728 | 12.708 | 0.392 | 2.134 | 0.771 |
| 345.0 | 7.7 | 314.9 | 2.102 | 11.182 | 12.705 | 0.422 | 2.116 | 0.742 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.46: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s² | Lat m/s² | Vert m/s² | Long m/s² | Lat m/s² | Vert m/s² |
| 0.0 | 13.0 | -8.8 | 2.850 | 7.297 | 11.915 | 0.564 | 1.602 | 0.775 |
| 15.0 | 13.6 | 9.9 | 2.671 | 7.195 | 12.376 | 0.555 | 1.533 | 0.805 |
| 30.0 | 14.0 | 26.7 | 2.295 | 7.654 | 12.520 | 0.524 | 1.551 | 0.848 |
| 45.0 | 14.4 | 42.6 | 1.896 | 9.347 | 13.200 | 0.457 | 1.710 | 0.948 |
| 60.0 | 14.6 | 57.5 | 1.360 | 9.408 | 13.508 | 0.353 | 1.726 | 1.061 |
| 75.0 | 15.0 | 73.1 | 1.258 | 9.148 | 14.676 | 0.196 | 1.754 | 1.112 |
| 90.0 | 15.0 | 88.9 | 1.457 | 18.342 | 15.073 | 0.087 | 1.792 | 1.041 |
| 105.0 | 15.0 | 104.7 | 1.629 | 15.791 | 13.605 | 0.126 | 1.844 | 0.852 |
| 120.0 | 14.4 | 117.4 | 0.863 | 9.159 | 13.329 | 0.136 | 1.734 | 0.794 |
| 135.0 | 14.0 | 131.7 | 0.992 | 7.098 | 13.120 | 0.147 | 1.469 | 0.671 |
| 150.0 | 14.2 | 146.4 | 0.785 | 6.317 | 11.903 | 0.154 | 1.135 | 0.538 |
| 165.0 | 14.6 | 162.0 | 1.041 | 6.293 | 11.982 | 0.167 | 0.968 | 0.452 |
| 180.0 | 14.6 | 177.5 | 1.065 | 6.719 | 10.797 | 0.191 | 1.082 | 0.415 |
| 195.0 | 14.7 | 194.8 | 1.205 | 9.283 | 10.592 | 0.171 | 1.393 | 0.378 |
| 210.0 | 14.2 | 216.7 | 2.068 | 11.115 | 11.572 | 0.193 | 2.125 | 0.422 |
| 225.0 | 13.8 | 235.0 | 1.304 | 9.758 | 12.943 | 0.163 | 2.481 | 0.502 |
| 240.0 | 13.7 | 248.5 | 1.312 | 12.591 | 13.925 | 0.162 | 2.738 | 0.587 |
| 255.0 | 13.9 | 261.5 | 1.354 | 22.614 | 13.609 | 0.137 | 2.920 | 0.729 |
| 270.0 | 14.2 | 274.6 | 0.752 | 14.047 | 14.292 | 0.103 | 2.998 | 0.865 |
| 285.0 | 14.5 | 287.4 | 2.332 | 13.298 | 13.292 | 0.195 | 2.834 | 0.895 |
| 300.0 | 14.6 | 300.2 | 1.437 | 12.565 | 12.892 | 0.328 | 2.265 | 0.886 |
| 315.0 | 14.4 | 312.9 | 1.814 | 11.295 | 12.422 | 0.432 | 1.879 | 0.821 |
| 330.0 | 13.9 | 326.0 | 2.144 | 9.694 | 12.144 | 0.500 | 1.713 | 0.795 |
| 345.0 | 13.5 | 339.5 | 2.532 | 8.936 | 12.010 | 0.546 | 1.530 | 0.770 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.47: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.6 | -1.6 | 2.516 | 6.801 | 12.491 | 0.585 | 1.350 | 0.944 |
| 15.0 | 19.6 | 13.6 | 2.904 | 6.795 | 12.490 | 0.590 | 1.365 | 0.945 |
| 30.0 | 19.7 | 29.1 | 2.275 | 7.924 | 12.837 | 0.554 | 1.564 | 0.979 |
| 45.0 | 19.8 | 44.1 | 2.007 | 9.154 | 13.378 | 0.485 | 1.701 | 1.058 |
| 60.0 | 19.8 | 58.6 | 1.641 | 9.929 | 15.140 | 0.369 | 1.689 | 1.137 |
| 75.0 | 20.0 | 73.8 | 0.999 | 9.121 | 15.079 | 0.197 | 1.791 | 1.149 |
| 90.0 | 20.0 | 89.1 | 2.330 | 19.173 | 16.040 | 0.111 | 1.852 | 1.014 |
| 105.0 | 20.0 | 104.3 | 3.213 | 20.742 | 13.785 | 0.148 | 2.022 | 0.779 |
| 120.0 | 19.7 | 118.6 | 0.691 | 7.954 | 12.655 | 0.151 | 1.974 | 0.750 |
| 135.0 | 19.6 | 133.4 | 0.948 | 7.334 | 12.171 | 0.174 | 1.819 | 0.560 |
| 150.0 | 19.6 | 148.0 | 0.927 | 7.554 | 11.371 | 0.193 | 1.365 | 0.468 |
| 165.0 | 19.6 | 163.7 | 1.022 | 6.768 | 11.223 | 0.202 | 1.020 | 0.401 |
| 180.0 | 19.8 | 179.8 | 1.199 | 7.525 | 10.641 | 0.211 | 1.078 | 0.380 |
| 195.0 | 19.7 | 195.7 | 0.928 | 7.526 | 10.286 | 0.192 | 1.544 | 0.455 |
| 210.0 | 19.7 | 210.4 | 1.585 | 11.865 | 11.889 | 0.176 | 1.926 | 0.587 |
| 225.0 | 19.6 | 226.6 | 0.949 | 9.057 | 11.452 | 0.160 | 2.352 | 0.519 |
| 240.0 | 19.3 | 243.6 | 1.047 | 12.731 | 13.702 | 0.163 | 2.926 | 0.524 |
| 255.0 | 19.6 | 258.3 | 1.059 | 14.132 | 13.496 | 0.148 | 3.084 | 0.658 |
| 270.0 | 19.6 | 272.8 | 0.772 | 16.425 | 13.617 | 0.113 | 3.210 | 0.833 |
| 285.0 | 19.8 | 286.6 | 1.265 | 14.513 | 13.640 | 0.183 | 3.040 | 0.958 |
| 300.0 | 19.9 | 300.3 | 1.573 | 15.147 | 13.316 | 0.344 | 2.475 | 1.010 |
| 315.0 | 19.8 | 314.1 | 2.146 | 11.105 | 12.628 | 0.466 | 1.940 | 0.985 |
| 330.0 | 19.7 | 328.6 | 2.294 | 8.401 | 12.987 | 0.539 | 1.531 | 0.966 |
| 345.0 | 19.6 | 343.4 | 2.842 | 6.950 | 12.428 | 0.573 | 1.400 | 0.952 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.48: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|----------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s² | Lat m/s² | Vert m/s² | Long m/s² | Lat m/s² | Vert m/s² |
| 0.0 | 25.0 | -0.7 | 3.165 | 6.647 | 14.020 | 0.620 | 1.316 | 1.229 |
| 15.0 | 25.0 | 14.6 | 2.960 | 7.149 | 13.370 | 0.614 | 1.415 | 1.209 |
| 30.0 | 25.0 | 29.8 | 2.607 | 8.680 | 13.732 | 0.578 | 1.595 | 1.206 |
| 45.0 | 25.0 | 44.6 | 2.033 | 9.512 | 14.009 | 0.511 | 1.703 | 1.245 |
| 60.0 | 25.0 | 59.2 | 1.659 | 10.159 | 15.050 | 0.382 | 1.767 | 1.261 |
| 75.0 | 25.0 | 74.1 | 1.237 | 8.876 | 15.394 | 0.207 | 1.909 | 1.185 |
| 90.0 | 25.1 | 89.2 | 6.261 | 14.439 | 14.542 | 0.178 | 1.896 | 1.011 |
| 105.0 | 25.0 | 104.2 | 4.410 | 15.110 | 13.406 | 0.180 | 2.058 | 0.691 |
| 120.0 | 24.8 | 119.1 | 0.984 | 10.422 | 12.964 | 0.193 | 2.573 | 0.737 |
| 135.0 | 24.6 | 133.6 | 1.148 | 8.493 | 11.657 | 0.226 | 2.198 | 0.577 |
| 150.0 | 24.9 | 148.5 | 0.988 | 8.484 | 11.219 | 0.228 | 1.520 | 0.465 |
| 165.0 | 25.5 | 163.7 | 1.208 | 7.475 | 10.839 | 0.215 | 1.010 | 0.389 |
| 180.0 | 26.3 | 179.3 | 2.078 | 7.336 | 10.416 | 0.249 | 0.922 | 0.383 |
| 195.0 | 26.0 | 195.3 | 1.112 | 5.761 | 10.064 | 0.165 | 1.010 | 0.323 |
| 210.0 | 25.1 | 210.5 | 0.965 | 7.818 | 10.220 | 0.175 | 1.660 | 0.512 |
| 225.0 | 24.8 | 225.5 | 0.942 | 9.258 | 10.108 | 0.180 | 2.377 | 0.700 |
| 240.0 | 24.7 | 241.4 | 1.021 | 16.006 | 13.880 | 0.177 | 3.007 | 0.684 |
| 255.0 | 24.8 | 256.7 | 2.292 | 21.670 | 14.788 | 0.173 | 3.146 | 0.670 |
| 270.0 | 24.8 | 271.8 | 1.166 | 15.823 | 13.481 | 0.138 | 3.291 | 0.852 |
| 285.0 | 25.0 | 286.2 | 1.100 | 15.447 | 13.820 | 0.187 | 3.228 | 1.036 |
| 300.0 | 25.0 | 300.4 | 1.419 | 13.207 | 13.962 | 0.363 | 2.604 | 1.169 |
| 315.0 | 25.1 | 314.7 | 1.961 | 11.075 | 13.396 | 0.489 | 1.987 | 1.214 |
| 330.0 | 25.0 | 329.4 | 2.631 | 9.512 | 13.318 | 0.563 | 1.617 | 1.236 |
| 345.0 | 25.0 | 344.3 | 2.547 | 7.567 | 13.524 | 0.599 | 1.355 | 1.235 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.49: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.3 | -0.1 | 2.875 | 6.895 | 15.090 | 0.629 | 1.395 | 1.558 |
| 15.0 | 30.2 | 15.0 | 2.637 | 7.769 | 14.275 | 0.628 | 1.496 | 1.528 |
| 30.0 | 30.2 | 30.1 | 2.622 | 9.690 | 14.536 | 0.595 | 1.659 | 1.499 |
| 45.0 | 30.2 | 44.9 | 2.254 | 9.339 | 15.106 | 0.531 | 1.802 | 1.496 |
| 60.0 | 30.2 | 59.5 | 1.684 | 9.488 | 15.433 | 0.410 | 1.796 | 1.463 |
| 75.0 | 30.1 | 74.2 | 0.927 | 9.112 | 14.901 | 0.214 | 2.085 | 1.249 |
| 90.0 | 30.1 | 89.2 | 3.688 | 22.633 | 14.299 | 0.161 | 2.092 | 1.009 |
| 105.0 | 30.1 | 104.2 | 2.737 | 10.312 | 13.175 | 0.192 | 2.134 | 0.681 |
| 120.0 | 29.8 | 119.5 | 1.549 | 10.544 | 11.692 | 0.233 | 2.829 | 0.625 |
| 135.0 | 29.3 | 132.0 | 1.224 | 8.873 | 11.658 | 0.274 | 2.215 | 0.625 |
| 150.0 | 29.6 | 146.6 | 1.313 | 8.652 | 10.857 | 0.311 | 1.706 | 0.580 |
| 165.0 | 30.3 | 161.6 | 1.355 | 8.635 | 10.337 | 0.371 | 1.316 | 0.550 |
| 180.0 | 31.0 | 177.2 | 1.428 | 8.132 | 9.980 | 0.372 | 1.212 | 0.566 |
| 195.0 | 31.5 | 194.2 | 1.348 | 7.630 | 10.798 | 0.347 | 1.460 | 0.534 |
| 210.0 | 30.4 | 212.5 | 1.039 | 11.940 | 12.390 | 0.315 | 2.275 | 0.598 |
| 225.0 | 30.0 | 225.7 | 1.374 | 9.971 | 11.321 | 0.222 | 2.240 | 0.718 |
| 240.0 | 29.7 | 240.5 | 1.369 | 12.237 | 11.770 | 0.236 | 3.225 | 0.803 |
| 255.0 | 29.9 | 255.8 | 4.838 | 17.672 | 12.434 | 0.226 | 3.122 | 0.775 |
| 270.0 | 30.0 | 271.1 | 0.856 | 14.679 | 14.460 | 0.153 | 3.268 | 0.883 |
| 285.0 | 30.1 | 285.9 | 1.525 | 16.146 | 13.849 | 0.193 | 3.293 | 1.118 |
| 300.0 | 30.2 | 300.4 | 1.494 | 15.612 | 13.773 | 0.376 | 2.813 | 1.336 |
| 315.0 | 30.3 | 315.0 | 2.072 | 13.164 | 14.477 | 0.506 | 2.211 | 1.484 |
| 330.0 | 30.3 | 329.8 | 2.529 | 10.910 | 14.585 | 0.580 | 1.732 | 1.532 |
| 345.0 | 30.3 | 344.8 | 2.727 | 8.443 | 14.990 | 0.618 | 1.477 | 1.567 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.50: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.3 | -529.3 | 1.682 | 8.316 | 12.405 | 0.239 | 2.446 | 0.601 |
| 15.0 | -2.6 | -113.0 | 1.547 | 7.246 | 11.963 | 0.293 | 1.823 | 0.605 |
| 30.0 | -4.0 | -135.5 | 1.439 | 7.602 | 12.915 | 0.274 | 1.865 | 0.732 |
| 45.0 | -3.8 | -120.5 | 1.137 | 8.306 | 13.075 | 0.236 | 2.054 | 0.802 |
| 60.0 | 2.2 | 51.7 | 1.028 | 7.575 | 13.047 | 0.233 | 1.707 | 0.799 |
| 75.0 | 2.1 | 80.1 | 0.681 | 6.975 | 13.784 | 0.094 | 1.692 | 0.836 |
| 90.0 | 0.3 | 101.2 | 0.640 | 7.010 | 13.801 | 0.081 | 1.744 | 0.859 |
| 105.0 | -1.5 | 111.4 | 0.859 | 7.531 | 13.597 | 0.121 | 1.813 | 0.869 |
| 120.0 | -3.6 | 122.6 | 0.832 | 7.704 | 13.619 | 0.176 | 1.805 | 0.853 |
| 135.0 | -4.7 | 134.3 | 1.208 | 8.435 | 13.398 | 0.235 | 1.619 | 0.780 |
| 150.0 | -4.5 | 149.3 | 1.214 | 7.402 | 12.696 | 0.277 | 1.281 | 0.687 |
| 165.0 | -2.9 | 168.9 | 1.894 | 6.765 | 12.174 | 0.300 | 0.888 | 0.552 |
| 180.0 | -1.3 | 526.9 | 1.394 | 9.769 | 12.343 | 0.253 | 2.552 | 0.601 |
| 195.0 | -1.6 | 358.3 | 1.413 | 8.607 | 13.776 | 0.202 | 2.408 | 0.616 |
| 210.0 | -0.4 | 251.6 | 1.245 | 9.370 | 12.704 | 0.143 | 2.191 | 0.647 |
| 225.0 | -0.7 | 256.9 | 0.978 | 10.393 | 12.572 | 0.112 | 2.210 | 0.666 |
| 240.0 | -1.2 | 263.7 | 0.665 | 10.992 | 12.610 | 0.077 | 2.190 | 0.688 |
| 255.0 | -2.0 | 270.9 | 0.618 | 11.229 | 12.715 | 0.062 | 2.138 | 0.698 |
| 270.0 | -2.1 | 278.3 | 0.574 | 10.495 | 12.530 | 0.069 | 2.057 | 0.684 |
| 285.0 | -2.1 | 284.3 | 0.699 | 10.010 | 12.290 | 0.102 | 1.977 | 0.665 |
| 300.0 | -2.4 | 290.2 | 0.912 | 9.888 | 12.275 | 0.141 | 1.924 | 0.651 |
| 315.0 | -2.7 | 241.7 | 1.598 | 11.560 | 12.259 | 0.182 | 2.698 | 0.663 |
| 330.0 | -2.6 | 252.0 | 1.163 | 10.564 | 12.837 | 0.194 | 2.566 | 0.637 |
| 345.0 | -2.7 | 50.0 | 1.556 | 9.662 | 12.788 | 0.228 | 2.138 | 0.627 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.51: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.8 | -40.7 | 1.798 | 8.992 | 12.151 | 0.294 | 1.786 | 0.588 |
| 15.0 | 2.2 | -132.5 | 1.671 | 6.967 | 13.503 | 0.188 | 1.721 | 0.748 |
| 30.0 | 2.6 | -88.1 | 1.623 | 7.237 | 12.629 | 0.229 | 2.513 | 0.734 |
| 45.0 | 3.1 | -99.6 | 1.254 | 6.944 | 12.802 | 0.175 | 2.155 | 0.795 |
| 60.0 | 3.6 | -83.8 | 1.320 | 7.035 | 13.175 | 0.173 | 2.265 | 0.812 |
| 75.0 | 5.1 | 66.4 | 0.827 | 7.448 | 12.939 | 0.164 | 1.625 | 0.848 |
| 90.0 | 4.9 | 89.0 | 0.469 | 6.671 | 13.895 | 0.054 | 1.593 | 0.855 |
| 105.0 | 4.4 | 104.1 | 0.557 | 6.764 | 13.751 | 0.068 | 1.648 | 0.843 |
| 120.0 | 3.6 | 114.9 | 0.715 | 7.148 | 13.085 | 0.106 | 1.648 | 0.829 |
| 135.0 | 3.0 | 122.9 | 1.027 | 7.630 | 13.256 | 0.136 | 1.629 | 0.810 |
| 150.0 | 2.5 | 131.4 | 1.204 | 7.743 | 13.759 | 0.166 | 1.579 | 0.766 |
| 165.0 | 2.2 | 138.9 | 1.293 | 7.961 | 12.998 | 0.190 | 1.520 | 0.718 |
| 180.0 | 2.1 | 149.1 | 1.609 | 6.428 | 12.129 | 0.212 | 1.424 | 0.647 |
| 195.0 | 4.2 | 206.2 | 1.640 | 8.719 | 11.278 | 0.221 | 1.585 | 0.363 |
| 210.0 | 4.3 | 241.2 | 1.434 | 9.431 | 12.211 | 0.163 | 2.110 | 0.501 |
| 225.0 | 4.0 | 251.2 | 1.153 | 10.847 | 12.586 | 0.131 | 2.157 | 0.562 |
| 240.0 | 3.9 | 260.4 | 0.864 | 11.804 | 12.310 | 0.097 | 2.186 | 0.617 |
| 255.0 | 4.0 | 270.1 | 0.457 | 11.497 | 12.578 | 0.059 | 2.166 | 0.654 |
| 270.0 | 4.0 | 278.8 | 0.485 | 11.040 | 12.418 | 0.057 | 2.149 | 0.674 |
| 285.0 | 4.0 | 287.8 | 0.808 | 10.522 | 13.205 | 0.107 | 2.046 | 0.664 |
| 300.0 | 3.9 | 296.2 | 0.924 | 10.756 | 12.053 | 0.166 | 1.899 | 0.633 |
| 315.0 | 3.6 | 301.3 | 1.013 | 10.738 | 12.010 | 0.205 | 1.876 | 0.629 |
| 330.0 | 3.3 | 307.1 | 1.413 | 10.940 | 12.220 | 0.241 | 1.853 | 0.616 |
| 345.0 | 3.0 | 313.4 | 1.640 | 10.202 | 12.354 | 0.272 | 1.822 | 0.596 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.52: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.6 | -33.6 | 1.995 | 10.257 | 11.539 | 0.363 | 1.786 | 0.613 |
| 15.0 | 7.4 | -26.9 | 2.001 | 8.128 | 11.421 | 0.384 | 1.763 | 0.610 |
| 30.0 | 7.4 | -18.7 | 2.263 | 6.965 | 11.534 | 0.399 | 1.673 | 0.604 |
| 45.0 | 7.4 | -8.1 | 1.961 | 6.471 | 11.643 | 0.409 | 1.582 | 0.619 |
| 60.0 | 7.6 | 13.7 | 2.259 | 7.491 | 12.148 | 0.389 | 1.549 | 0.696 |
| 75.0 | 9.9 | 71.8 | 0.713 | 7.178 | 13.583 | 0.130 | 1.476 | 0.867 |
| 90.0 | 9.9 | 88.5 | 0.256 | 6.710 | 13.643 | 0.053 | 1.448 | 0.835 |
| 105.0 | 9.7 | 104.0 | 0.596 | 6.536 | 13.194 | 0.067 | 1.452 | 0.770 |
| 120.0 | 9.0 | 116.0 | 0.912 | 6.379 | 13.298 | 0.095 | 1.358 | 0.747 |
| 135.0 | 8.4 | 127.3 | 1.272 | 7.023 | 13.201 | 0.120 | 1.231 | 0.682 |
| 150.0 | 7.9 | 137.5 | 1.216 | 6.488 | 12.580 | 0.138 | 1.189 | 0.620 |
| 165.0 | 7.7 | 145.8 | 1.251 | 6.389 | 12.554 | 0.148 | 1.244 | 0.602 |
| 180.0 | 7.6 | 157.3 | 1.348 | 6.252 | 12.427 | 0.164 | 1.324 | 0.577 |
| 195.0 | 9.0 | 194.5 | 1.754 | 8.862 | 10.512 | 0.176 | 1.415 | 0.367 |
| 210.0 | 8.9 | 221.5 | 1.709 | 9.948 | 11.322 | 0.169 | 1.926 | 0.341 |
| 225.0 | 8.7 | 238.4 | 1.269 | 9.636 | 11.552 | 0.148 | 2.127 | 0.420 |
| 240.0 | 8.8 | 251.0 | 1.114 | 12.247 | 13.346 | 0.124 | 2.249 | 0.507 |
| 255.0 | 9.1 | 262.7 | 0.771 | 12.239 | 12.313 | 0.088 | 2.313 | 0.584 |
| 270.0 | 9.3 | 274.9 | 0.373 | 11.223 | 12.608 | 0.058 | 2.377 | 0.641 |
| 285.0 | 9.5 | 287.2 | 0.782 | 11.514 | 12.258 | 0.101 | 2.264 | 0.659 |
| 300.0 | 9.4 | 299.6 | 0.964 | 10.405 | 12.130 | 0.202 | 1.923 | 0.633 |
| 315.0 | 8.9 | 310.0 | 1.481 | 9.775 | 11.867 | 0.278 | 1.739 | 0.617 |
| 330.0 | 8.0 | 314.6 | 1.565 | 9.280 | 12.340 | 0.310 | 1.789 | 0.615 |
| 345.0 | 7.7 | 320.9 | 1.880 | 9.502 | 11.869 | 0.341 | 1.768 | 0.601 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.53: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 13.9 | -4.3 | 1.970 | 7.019 | 11.921 | 0.463 | 1.209 | 0.681 |
| 15.0 | 14.0 | 11.3 | 2.022 | 6.150 | 11.834 | 0.459 | 1.223 | 0.704 |
| 30.0 | 14.3 | 27.1 | 1.877 | 6.532 | 12.407 | 0.423 | 1.329 | 0.759 |
| 45.0 | 14.5 | 42.6 | 1.442 | 7.352 | 12.642 | 0.353 | 1.365 | 0.826 |
| 60.0 | 14.7 | 57.4 | 0.994 | 7.663 | 13.146 | 0.250 | 1.382 | 0.886 |
| 75.0 | 15.0 | 73.4 | 0.701 | 6.728 | 14.083 | 0.130 | 1.386 | 0.873 |
| 90.0 | 15.0 | 88.8 | 0.515 | 10.597 | 13.239 | 0.069 | 1.402 | 0.802 |
| 105.0 | 15.0 | 104.3 | 0.554 | 7.195 | 12.342 | 0.087 | 1.365 | 0.675 |
| 120.0 | 14.5 | 117.6 | 0.757 | 6.331 | 13.097 | 0.115 | 1.322 | 0.669 |
| 135.0 | 14.3 | 132.0 | 0.626 | 6.735 | 11.857 | 0.130 | 1.105 | 0.555 |
| 150.0 | 14.2 | 146.8 | 1.194 | 6.439 | 12.214 | 0.146 | 0.981 | 0.472 |
| 165.0 | 14.4 | 162.1 | 0.844 | 6.597 | 11.192 | 0.146 | 0.915 | 0.423 |
| 180.0 | 14.5 | 178.0 | 1.081 | 7.236 | 10.279 | 0.158 | 1.016 | 0.373 |
| 195.0 | 14.6 | 194.4 | 1.192 | 8.550 | 10.951 | 0.144 | 1.286 | 0.385 |
| 210.0 | 14.4 | 212.7 | 1.185 | 9.407 | 11.283 | 0.150 | 1.774 | 0.360 |
| 225.0 | 14.2 | 230.3 | 1.013 | 8.420 | 11.535 | 0.136 | 2.195 | 0.410 |
| 240.0 | 14.3 | 244.5 | 0.969 | 10.308 | 13.993 | 0.128 | 2.476 | 0.429 |
| 255.0 | 14.6 | 258.5 | 0.819 | 11.116 | 12.655 | 0.107 | 2.520 | 0.515 |
| 270.0 | 14.7 | 272.6 | 0.547 | 11.321 | 12.664 | 0.078 | 2.599 | 0.632 |
| 285.0 | 14.8 | 286.5 | 0.644 | 11.793 | 12.665 | 0.105 | 2.505 | 0.697 |
| 300.0 | 14.7 | 300.1 | 1.011 | 11.482 | 12.223 | 0.214 | 2.083 | 0.690 |
| 315.0 | 14.5 | 313.5 | 1.322 | 10.169 | 11.937 | 0.318 | 1.648 | 0.674 |
| 330.0 | 14.2 | 327.0 | 1.777 | 9.460 | 11.856 | 0.395 | 1.412 | 0.669 |
| 345.0 | 13.9 | 341.0 | 2.078 | 8.229 | 11.674 | 0.442 | 1.292 | 0.664 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.54: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.7 | -1.5 | 2.428 | 5.833 | 11.972 | 0.499 | 1.142 | 0.799 |
| 15.0 | 19.7 | 13.8 | 1.987 | 6.561 | 12.341 | 0.489 | 1.227 | 0.811 |
| 30.0 | 19.8 | 29.0 | 2.076 | 6.709 | 12.618 | 0.451 | 1.339 | 0.843 |
| 45.0 | 19.8 | 44.0 | 1.642 | 7.793 | 13.114 | 0.369 | 1.408 | 0.883 |
| 60.0 | 19.9 | 58.6 | 0.962 | 7.833 | 13.191 | 0.260 | 1.367 | 0.941 |
| 75.0 | 20.1 | 73.8 | 0.606 | 7.134 | 13.987 | 0.137 | 1.421 | 0.885 |
| 90.0 | 20.1 | 89.0 | 0.431 | 7.604 | 13.220 | 0.090 | 1.374 | 0.759 |
| 105.0 | 20.1 | 104.1 | 1.545 | 11.778 | 12.148 | 0.119 | 1.399 | 0.568 |
| 120.0 | 19.9 | 118.6 | 0.595 | 7.097 | 11.928 | 0.142 | 1.562 | 0.648 |
| 135.0 | 19.9 | 133.6 | 0.814 | 8.650 | 11.228 | 0.150 | 1.190 | 0.483 |
| 150.0 | 19.8 | 148.5 | 0.974 | 7.948 | 11.191 | 0.177 | 1.059 | 0.438 |
| 165.0 | 19.8 | 163.7 | 0.946 | 5.887 | 10.907 | 0.190 | 0.890 | 0.413 |
| 180.0 | 20.0 | 179.4 | 0.923 | 6.531 | 10.535 | 0.188 | 0.968 | 0.398 |
| 195.0 | 19.9 | 194.4 | 0.994 | 7.379 | 10.281 | 0.167 | 1.238 | 0.463 |
| 210.0 | 19.9 | 209.6 | 0.751 | 8.222 | 10.215 | 0.145 | 1.590 | 0.559 |
| 225.0 | 19.8 | 225.8 | 1.026 | 8.897 | 10.846 | 0.140 | 2.055 | 0.515 |
| 240.0 | 19.7 | 241.8 | 0.880 | 9.245 | 12.386 | 0.144 | 2.641 | 0.462 |
| 255.0 | 19.9 | 256.9 | 0.958 | 9.739 | 12.349 | 0.121 | 2.693 | 0.544 |
| 270.0 | 19.9 | 271.6 | 0.566 | 12.171 | 12.488 | 0.095 | 2.753 | 0.664 |
| 285.0 | 20.0 | 286.0 | 0.632 | 13.150 | 12.807 | 0.108 | 2.708 | 0.771 |
| 300.0 | 19.9 | 300.2 | 1.076 | 12.259 | 12.085 | 0.227 | 2.217 | 0.769 |
| 315.0 | 19.9 | 314.3 | 1.501 | 10.739 | 12.227 | 0.346 | 1.708 | 0.780 |
| 330.0 | 19.8 | 328.7 | 1.799 | 8.354 | 12.450 | 0.429 | 1.347 | 0.790 |
| 345.0 | 19.7 | 343.5 | 2.412 | 6.723 | 12.040 | 0.479 | 1.172 | 0.785 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.55: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.0 | -0.6 | 2.204 | 6.747 | 12.794 | 0.528 | 1.203 | 1.021 |
| 15.0 | 25.0 | 14.6 | 2.421 | 6.900 | 13.295 | 0.518 | 1.279 | 1.015 |
| 30.0 | 25.0 | 29.7 | 2.113 | 7.374 | 13.245 | 0.482 | 1.395 | 1.023 |
| 45.0 | 25.0 | 44.6 | 1.599 | 7.509 | 13.236 | 0.395 | 1.469 | 1.022 |
| 60.0 | 25.0 | 59.2 | 1.075 | 7.904 | 14.738 | 0.275 | 1.451 | 1.022 |
| 75.0 | 25.1 | 74.2 | 0.554 | 7.582 | 13.512 | 0.146 | 1.549 | 0.925 |
| 90.0 | 25.2 | 89.2 | 0.866 | 13.486 | 13.744 | 0.111 | 1.517 | 0.751 |
| 105.0 | 25.1 | 104.1 | 1.390 | 9.045 | 13.084 | 0.145 | 1.489 | 0.525 |
| 120.0 | 25.0 | 119.0 | 0.953 | 10.457 | 12.242 | 0.175 | 1.871 | 0.622 |
| 135.0 | 24.8 | 133.8 | 1.004 | 9.366 | 12.420 | 0.210 | 1.929 | 0.541 |
| 150.0 | 24.8 | 148.3 | 0.981 | 8.519 | 10.840 | 0.208 | 0.992 | 0.449 |
| 165.0 | 25.6 | 164.1 | 1.059 | 5.238 | 10.788 | 0.232 | 0.776 | 0.384 |
| 180.0 | 25.9 | 179.3 | 0.893 | 5.048 | 10.200 | 0.173 | 0.603 | 0.278 |
| 195.0 | 25.7 | 196.3 | 1.265 | 7.873 | 10.368 | 0.229 | 1.340 | 0.395 |
| 210.0 | 25.1 | 210.4 | 0.843 | 7.897 | 10.255 | 0.182 | 1.631 | 0.528 |
| 225.0 | 24.9 | 225.0 | 0.879 | 8.894 | 10.195 | 0.173 | 2.173 | 0.719 |
| 240.0 | 24.9 | 240.5 | 1.071 | 10.837 | 11.620 | 0.161 | 2.630 | 0.592 |
| 255.0 | 25.1 | 256.0 | 0.860 | 14.192 | 11.514 | 0.139 | 2.761 | 0.645 |
| 270.0 | 25.0 | 271.1 | 0.524 | 11.758 | 12.072 | 0.112 | 2.851 | 0.742 |
| 285.0 | 25.1 | 285.8 | 0.667 | 13.707 | 13.014 | 0.118 | 2.887 | 0.856 |
| 300.0 | 25.1 | 300.1 | 0.994 | 12.685 | 12.441 | 0.238 | 2.278 | 0.871 |
| 315.0 | 25.1 | 314.7 | 1.646 | 10.880 | 12.765 | 0.369 | 1.805 | 0.940 |
| 330.0 | 25.0 | 329.4 | 2.010 | 9.417 | 13.023 | 0.457 | 1.459 | 0.997 |
| 345.0 | 25.0 | 344.3 | 2.351 | 7.059 | 12.923 | 0.505 | 1.245 | 1.015 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.56: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.2 | -0.2 | 2.507 | 7.806 | 13.905 | 0.550 | 1.282 | 1.300 |
| 15.0 | 30.2 | 15.0 | 2.167 | 7.703 | 14.238 | 0.536 | 1.373 | 1.284 |
| 30.0 | 30.2 | 30.0 | 2.222 | 9.115 | 14.039 | 0.500 | 1.503 | 1.269 |
| 45.0 | 30.2 | 44.9 | 1.761 | 8.396 | 13.767 | 0.417 | 1.595 | 1.208 |
| 60.0 | 30.2 | 59.6 | 1.157 | 8.640 | 14.508 | 0.293 | 1.591 | 1.143 |
| 75.0 | 30.2 | 74.3 | 0.747 | 8.351 | 13.976 | 0.156 | 1.745 | 0.975 |
| 90.0 | 30.2 | 89.3 | 0.754 | 8.252 | 13.098 | 0.128 | 1.684 | 0.778 |
| 105.0 | 30.2 | 104.1 | 1.792 | 10.402 | 12.301 | 0.177 | 1.606 | 0.533 |
| 120.0 | 30.0 | 119.4 | 0.720 | 8.212 | 11.200 | 0.206 | 2.224 | 0.555 |
| 135.0 | 29.8 | 133.7 | 1.065 | 9.177 | 10.910 | 0.249 | 1.953 | 0.489 |
| 150.0 | 30.0 | 148.1 | 1.122 | 8.862 | 10.468 | 0.263 | 1.251 | 0.475 |
| 165.0 | 30.2 | 162.5 | 1.102 | 6.894 | 10.451 | 0.326 | 1.007 | 0.445 |
| 180.0 | 30.8 | 177.9 | 1.553 | 6.396 | 10.012 | 0.322 | 0.894 | 0.438 |
| 195.0 | 31.6 | 194.5 | 1.165 | 5.980 | 10.253 | 0.273 | 1.138 | 0.423 |
| 210.0 | 30.8 | 210.9 | 1.446 | 11.157 | 10.194 | 0.259 | 1.702 | 0.522 |
| 225.0 | 30.1 | 225.2 | 0.868 | 8.264 | 10.118 | 0.210 | 2.017 | 0.692 |
| 240.0 | 30.0 | 240.1 | 1.120 | 11.803 | 10.162 | 0.194 | 2.572 | 0.722 |
| 255.0 | 30.1 | 255.5 | 0.995 | 13.510 | 10.929 | 0.167 | 2.650 | 0.776 |
| 270.0 | 30.1 | 270.7 | 0.624 | 11.893 | 11.826 | 0.132 | 2.895 | 0.838 |
| 285.0 | 30.2 | 285.5 | 0.690 | 12.659 | 13.015 | 0.129 | 2.904 | 0.952 |
| 300.0 | 30.2 | 300.2 | 1.078 | 12.897 | 13.064 | 0.254 | 2.443 | 0.957 |
| 315.0 | 30.2 | 314.9 | 1.593 | 11.540 | 13.703 | 0.391 | 1.926 | 1.147 |
| 330.0 | 30.2 | 329.7 | 2.061 | 8.565 | 14.356 | 0.483 | 1.527 | 1.243 |
| 345.0 | 30.2 | 344.7 | 2.444 | 8.772 | 14.013 | 0.528 | 1.355 | 1.289 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.57: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.5 | -110.6 | 1.902 | 11.040 | 12.050 | 0.294 | 2.897 | 0.630 |
| 15.0 | -2.8 | 189.5 | 2.346 | 8.524 | 11.890 | 0.333 | 1.635 | 0.592 |
| 30.0 | -4.0 | -145.1 | 1.647 | 8.952 | 12.130 | 0.322 | 2.163 | 0.732 |
| 45.0 | 2.0 | 30.6 | 1.302 | 8.394 | 12.399 | 0.320 | 1.711 | 0.963 |
| 60.0 | 3.8 | 54.5 | 1.007 | 7.770 | 14.152 | 0.237 | 1.671 | 0.974 |
| 75.0 | 2.8 | 85.5 | 0.753 | 7.041 | 14.305 | 0.085 | 1.581 | 0.916 |
| 90.0 | 0.3 | 106.0 | 1.007 | 8.217 | 13.442 | 0.107 | 1.691 | 0.911 |
| 105.0 | -2.3 | 118.7 | 1.078 | 8.190 | 13.521 | 0.155 | 1.778 | 0.947 |
| 120.0 | -4.4 | 132.0 | 1.121 | 7.933 | 13.629 | 0.225 | 1.658 | 0.912 |
| 135.0 | -5.1 | 146.2 | 1.479 | 8.217 | 13.599 | 0.290 | 1.413 | 0.814 |
| 150.0 | -4.3 | 160.0 | 1.437 | 8.569 | 12.996 | 0.322 | 1.117 | 0.646 |
| 165.0 | -2.8 | 173.3 | 1.727 | 7.607 | 12.644 | 0.333 | 1.085 | 0.516 |
| 180.0 | 0.4 | 310.9 | 1.772 | 10.460 | 13.597 | 0.271 | 2.842 | 0.658 |
| 195.0 | 1.1 | 234.8 | 1.822 | 10.278 | 11.714 | 0.227 | 2.464 | 0.587 |
| 210.0 | -0.2 | 245.4 | 1.544 | 11.067 | 12.725 | 0.200 | 2.481 | 0.642 |
| 225.0 | -0.7 | 253.7 | 1.260 | 11.894 | 12.533 | 0.149 | 2.493 | 0.713 |
| 240.0 | -1.1 | 261.7 | 0.963 | 12.045 | 12.687 | 0.104 | 2.454 | 0.748 |
| 255.0 | -2.3 | 269.6 | 1.121 | 11.961 | 12.517 | 0.086 | 2.390 | 0.795 |
| 270.0 | -2.8 | 277.2 | 0.644 | 11.703 | 13.092 | 0.084 | 2.276 | 0.806 |
| 285.0 | -3.5 | 283.1 | 0.770 | 11.602 | 11.806 | 0.116 | 2.192 | 0.813 |
| 300.0 | -3.5 | 288.4 | 1.033 | 11.387 | 12.099 | 0.160 | 2.141 | 0.843 |
| 315.0 | -3.9 | 295.7 | 1.874 | 15.422 | 13.688 | 0.204 | 2.193 | 0.857 |
| 330.0 | -0.6 | 141.1 | 1.365 | 11.267 | 13.293 | 0.199 | 3.093 | 0.703 |
| 345.0 | 0.6 | 141.0 | 1.770 | 11.268 | 11.940 | 0.229 | 2.814 | 0.618 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.58: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 1.7 | -41.7 | 1.990 | 12.019 | 12.376 | 0.303 | 2.119 | 0.796 |
| 15.0 | 1.3 | -140.8 | 1.912 | 8.213 | 13.485 | 0.228 | 1.679 | 0.830 |
| 30.0 | 1.9 | -124.7 | 1.918 | 7.364 | 12.737 | 0.211 | 2.161 | 0.850 |
| 45.0 | 2.6 | -114.2 | 1.514 | 7.323 | 12.730 | 0.187 | 2.287 | 0.871 |
| 60.0 | 3.5 | -61.9 | 1.753 | 8.268 | 12.611 | 0.237 | 3.488 | 0.904 |
| 75.0 | 5.8 | 71.4 | 1.044 | 8.034 | 14.052 | 0.143 | 1.507 | 0.935 |
| 90.0 | 5.0 | 94.4 | 0.426 | 7.176 | 14.211 | 0.063 | 1.564 | 0.881 |
| 105.0 | 4.3 | 108.2 | 1.194 | 7.899 | 13.435 | 0.098 | 1.571 | 0.857 |
| 120.0 | 3.4 | 118.0 | 1.296 | 9.798 | 13.168 | 0.129 | 1.560 | 0.872 |
| 135.0 | 2.5 | 127.1 | 1.642 | 9.185 | 12.837 | 0.163 | 1.537 | 0.880 |
| 150.0 | 1.9 | 134.9 | 1.725 | 9.514 | 13.511 | 0.191 | 1.495 | 0.870 |
| 165.0 | 1.5 | 143.3 | 1.633 | 9.671 | 13.866 | 0.219 | 1.443 | 0.843 |
| 180.0 | 1.3 | 153.9 | 1.553 | 8.417 | 12.749 | 0.247 | 1.361 | 0.778 |
| 195.0 | 1.8 | 168.9 | 2.629 | 9.719 | 11.779 | 0.272 | 1.266 | 0.661 |
| 210.0 | 4.5 | 235.3 | 1.898 | 11.270 | 11.735 | 0.206 | 2.385 | 0.537 |
| 225.0 | 4.1 | 248.3 | 1.470 | 11.293 | 11.778 | 0.168 | 2.426 | 0.615 |
| 240.0 | 3.6 | 258.0 | 1.087 | 12.443 | 12.483 | 0.135 | 2.439 | 0.682 |
| 255.0 | 3.6 | 268.2 | 1.022 | 11.809 | 12.841 | 0.096 | 2.430 | 0.727 |
| 270.0 | 3.5 | 276.9 | 0.681 | 12.218 | 12.028 | 0.078 | 2.389 | 0.754 |
| 285.0 | 3.6 | 285.8 | 0.741 | 11.981 | 11.885 | 0.094 | 2.312 | 0.776 |
| 300.0 | 3.0 | 292.4 | 0.864 | 12.014 | 11.718 | 0.141 | 2.191 | 0.813 |
| 315.0 | 2.6 | 298.6 | 1.197 | 11.984 | 11.764 | 0.189 | 2.160 | 0.881 |
| 330.0 | 2.3 | 306.2 | 1.474 | 11.749 | 11.346 | 0.235 | 2.101 | 0.866 |
| 345.0 | 2.0 | 312.9 | 1.836 | 11.067 | 11.192 | 0.276 | 2.091 | 0.857 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.59: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 6.9 | -37.5 | 2.268 | 10.669 | 11.601 | 0.362 | 2.158 | 0.826 |
| 15.0 | 6.8 | -31.4 | 2.331 | 10.013 | 11.505 | 0.388 | 2.122 | 0.778 |
| 30.0 | 6.8 | -26.2 | 2.127 | 9.239 | 11.862 | 0.402 | 2.093 | 0.748 |
| 45.0 | 7.7 | -78.8 | 1.781 | 7.904 | 12.336 | 0.242 | 2.961 | 0.794 |
| 60.0 | 6.9 | -10.9 | 2.022 | 9.022 | 12.497 | 0.410 | 2.164 | 0.787 |
| 75.0 | 7.6 | 24.5 | 1.794 | 9.483 | 13.801 | 0.368 | 2.004 | 0.889 |
| 90.0 | 9.7 | 88.3 | 0.341 | 8.638 | 13.801 | 0.061 | 1.504 | 0.858 |
| 105.0 | 9.5 | 103.2 | 0.976 | 9.943 | 13.030 | 0.088 | 1.477 | 0.735 |
| 120.0 | 8.7 | 114.3 | 0.972 | 11.200 | 11.887 | 0.107 | 1.280 | 0.714 |
| 135.0 | 8.1 | 125.0 | 1.021 | 7.824 | 12.271 | 0.140 | 1.118 | 0.667 |
| 150.0 | 7.6 | 134.4 | 1.596 | 7.538 | 13.852 | 0.159 | 1.031 | 0.647 |
| 165.0 | 7.3 | 144.5 | 1.388 | 6.924 | 13.254 | 0.177 | 1.079 | 0.656 |
| 180.0 | 7.1 | 153.9 | 1.383 | 6.961 | 12.674 | 0.190 | 1.119 | 0.666 |
| 195.0 | 7.0 | 165.7 | 1.889 | 6.946 | 11.669 | 0.207 | 1.082 | 0.638 |
| 210.0 | 8.8 | 220.9 | 2.602 | 12.785 | 11.132 | 0.212 | 2.189 | 0.500 |
| 225.0 | 8.8 | 240.1 | 1.835 | 11.582 | 11.070 | 0.174 | 2.427 | 0.506 |
| 240.0 | 8.8 | 251.8 | 1.469 | 11.758 | 12.810 | 0.150 | 2.533 | 0.579 |
| 255.0 | 8.9 | 263.4 | 0.936 | 12.913 | 11.907 | 0.118 | 2.583 | 0.665 |
| 270.0 | 8.9 | 275.4 | 1.086 | 13.027 | 12.136 | 0.096 | 2.619 | 0.733 |
| 285.0 | 9.1 | 286.9 | 1.423 | 13.160 | 12.241 | 0.110 | 2.531 | 0.806 |
| 300.0 | 8.9 | 298.5 | 1.302 | 12.302 | 11.571 | 0.190 | 2.240 | 0.796 |
| 315.0 | 7.9 | 306.1 | 1.182 | 12.382 | 11.449 | 0.250 | 2.113 | 0.801 |
| 330.0 | 7.3 | 310.9 | 1.577 | 11.688 | 11.382 | 0.287 | 2.152 | 0.865 |
| 345.0 | 7.1 | 317.3 | 1.996 | 11.474 | 11.692 | 0.333 | 2.126 | 0.872 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.60: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 11.9 | -21.9 | 2.331 | 13.946 | 11.536 | 0.485 | 1.995 | 0.976 |
| 15.0 | 11.7 | -12.9 | 2.690 | 10.444 | 12.001 | 0.506 | 1.948 | 0.940 |
| 30.0 | 11.8 | 0.1 | 2.742 | 9.802 | 12.198 | 0.516 | 1.869 | 0.950 |
| 45.0 | 12.1 | 19.1 | 2.127 | 9.192 | 12.324 | 0.481 | 1.778 | 1.006 |
| 60.0 | 12.7 | 42.5 | 1.446 | 8.608 | 12.831 | 0.366 | 1.513 | 1.039 |
| 75.0 | 14.8 | 72.7 | 0.615 | 7.871 | 13.864 | 0.138 | 1.503 | 0.936 |
| 90.0 | 14.7 | 88.3 | 0.386 | 8.957 | 13.250 | 0.079 | 1.550 | 0.783 |
| 105.0 | 14.6 | 102.6 | 1.025 | 10.721 | 14.171 | 0.100 | 1.538 | 0.613 |
| 120.0 | 13.9 | 115.1 | 0.810 | 9.076 | 13.885 | 0.127 | 1.324 | 0.597 |
| 135.0 | 13.5 | 129.1 | 0.999 | 9.481 | 12.606 | 0.152 | 1.242 | 0.544 |
| 150.0 | 13.4 | 143.3 | 0.900 | 9.290 | 11.591 | 0.168 | 1.163 | 0.503 |
| 165.0 | 13.2 | 158.7 | 1.767 | 8.907 | 12.319 | 0.192 | 1.151 | 0.479 |
| 180.0 | 14.0 | 176.8 | 1.113 | 8.380 | 10.069 | 0.186 | 1.159 | 0.464 |
| 195.0 | 13.9 | 196.1 | 2.182 | 13.160 | 10.334 | 0.201 | 1.702 | 0.497 |
| 210.0 | 14.0 | 215.4 | 1.206 | 10.211 | 11.375 | 0.182 | 2.115 | 0.508 |
| 225.0 | 14.1 | 231.1 | 1.332 | 10.110 | 12.341 | 0.160 | 2.346 | 0.565 |
| 240.0 | 14.2 | 245.1 | 1.418 | 18.124 | 11.630 | 0.153 | 2.691 | 0.615 |
| 255.0 | 14.3 | 259.0 | 1.599 | 24.076 | 11.613 | 0.144 | 2.901 | 0.718 |
| 270.0 | 14.4 | 273.2 | 0.710 | 13.076 | 11.757 | 0.095 | 2.858 | 0.774 |
| 285.0 | 14.5 | 286.6 | 0.917 | 13.517 | 12.054 | 0.108 | 2.814 | 0.872 |
| 300.0 | 14.4 | 300.2 | 1.835 | 11.537 | 12.069 | 0.215 | 2.334 | 0.776 |
| 315.0 | 14.2 | 312.9 | 1.264 | 11.324 | 11.618 | 0.317 | 2.009 | 0.896 |
| 330.0 | 13.3 | 324.8 | 1.916 | 13.506 | 11.606 | 0.406 | 1.854 | 0.886 |
| 345.0 | 12.1 | 330.4 | 2.129 | 11.458 | 11.604 | 0.449 | 1.952 | 0.933 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.61: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.2 | -2.9 | 2.564 | 8.128 | 12.116 | 0.545 | 1.577 | 0.948 |
| 15.0 | 19.2 | 12.2 | 2.295 | 8.376 | 12.193 | 0.535 | 1.583 | 0.953 |
| 30.0 | 19.3 | 27.5 | 2.155 | 9.416 | 12.701 | 0.490 | 1.576 | 0.987 |
| 45.0 | 19.4 | 42.5 | 1.536 | 9.281 | 13.234 | 0.396 | 1.521 | 1.039 |
| 60.0 | 19.5 | 57.0 | 1.135 | 8.743 | 13.420 | 0.282 | 1.293 | 1.041 |
| 75.0 | 19.9 | 73.4 | 0.903 | 9.173 | 15.282 | 0.147 | 1.689 | 0.971 |
| 90.0 | 19.8 | 88.3 | 1.277 | 15.234 | 13.466 | 0.105 | 1.783 | 0.777 |
| 105.0 | 19.6 | 102.9 | 5.537 | 11.385 | 12.086 | 0.196 | 1.722 | 0.609 |
| 120.0 | 19.5 | 117.0 | 0.907 | 12.330 | 11.869 | 0.166 | 1.588 | 0.632 |
| 135.0 | 19.3 | 131.9 | 0.810 | 11.927 | 11.695 | 0.186 | 1.561 | 0.585 |
| 150.0 | 19.2 | 146.9 | 0.943 | 10.628 | 11.070 | 0.234 | 1.560 | 0.591 |
| 165.0 | 19.6 | 163.2 | 1.390 | 9.355 | 10.962 | 0.252 | 1.250 | 0.525 |
| 180.0 | 19.7 | 178.9 | 0.880 | 7.644 | 10.124 | 0.217 | 1.133 | 0.549 |
| 195.0 | 19.6 | 195.3 | 1.264 | 9.630 | 10.378 | 0.226 | 1.669 | 0.624 |
| 210.0 | 19.5 | 210.8 | 1.675 | 14.160 | 10.242 | 0.199 | 1.933 | 0.660 |
| 225.0 | 19.3 | 227.1 | 1.224 | 10.814 | 12.787 | 0.180 | 2.354 | 0.662 |
| 240.0 | 19.5 | 242.2 | 1.276 | 14.541 | 12.510 | 0.165 | 2.749 | 0.719 |
| 255.0 | 19.7 | 257.3 | 0.967 | 14.393 | 13.170 | 0.136 | 2.931 | 0.826 |
| 270.0 | 19.7 | 272.1 | 0.610 | 13.322 | 11.838 | 0.105 | 3.087 | 0.911 |
| 285.0 | 19.7 | 286.3 | 0.642 | 12.990 | 12.600 | 0.114 | 3.118 | 1.003 |
| 300.0 | 19.7 | 300.5 | 1.011 | 12.887 | 11.769 | 0.223 | 2.577 | 0.869 |
| 315.0 | 19.6 | 314.1 | 1.485 | 13.975 | 12.108 | 0.349 | 2.095 | 0.956 |
| 330.0 | 19.4 | 328.2 | 2.166 | 11.311 | 11.903 | 0.447 | 1.839 | 0.905 |
| 345.0 | 19.3 | 342.5 | 2.300 | 9.777 | 12.358 | 0.515 | 1.621 | 0.931 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.62: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 24.8 | -1.3 | 2.696 | 8.851 | 12.713 | 0.575 | 1.653 | 1.105 |
| 15.0 | 24.7 | 13.8 | 2.547 | 8.873 | 12.721 | 0.563 | 1.641 | 1.092 |
| 30.0 | 24.8 | 29.0 | 2.482 | 9.341 | 13.360 | 0.515 | 1.649 | 1.095 |
| 45.0 | 24.8 | 43.7 | 1.842 | 9.321 | 13.743 | 0.418 | 1.565 | 1.107 |
| 60.0 | 24.7 | 58.0 | 2.172 | 9.433 | 14.449 | 0.298 | 1.338 | 1.102 |
| 75.0 | 24.9 | 73.6 | 0.797 | 9.059 | 13.961 | 0.162 | 1.833 | 1.042 |
| 90.0 | 24.8 | 88.5 | 7.420 | 12.153 | 12.929 | 0.210 | 1.835 | 0.809 |
| 105.0 | 24.7 | 103.0 | 6.933 | 16.087 | 12.208 | 0.238 | 1.951 | 0.713 |
| 120.0 | 24.6 | 118.0 | 1.420 | 11.179 | 12.156 | 0.210 | 1.789 | 0.690 |
| 135.0 | 24.6 | 133.1 | 1.180 | 10.839 | 11.116 | 0.244 | 1.843 | 0.637 |
| 150.0 | 24.5 | 147.2 | 1.058 | 9.732 | 10.437 | 0.248 | 1.222 | 0.575 |
| 165.0 | 25.0 | 162.8 | 1.479 | 10.112 | 10.212 | 0.247 | 0.859 | 0.508 |
| 180.0 | 26.0 | 179.2 | 0.892 | 6.337 | 10.158 | 0.224 | 0.680 | 0.402 |
| 195.0 | 25.6 | 194.8 | 0.812 | 6.988 | 10.159 | 0.212 | 1.029 | 0.514 |
| 210.0 | 24.8 | 210.2 | 1.405 | 9.710 | 10.340 | 0.227 | 1.808 | 0.742 |
| 225.0 | 24.8 | 224.8 | 1.090 | 10.202 | 10.245 | 0.189 | 1.945 | 0.833 |
| 240.0 | 24.7 | 240.6 | 1.413 | 14.244 | 10.510 | 0.194 | 2.717 | 0.858 |
| 255.0 | 24.9 | 256.1 | 1.204 | 13.984 | 11.413 | 0.159 | 3.035 | 1.053 |
| 270.0 | 24.8 | 271.4 | 0.638 | 13.417 | 11.802 | 0.123 | 3.296 | 1.136 |
| 285.0 | 24.9 | 285.8 | 0.611 | 12.902 | 12.313 | 0.120 | 3.249 | 1.266 |
| 300.0 | 24.9 | 300.4 | 1.085 | 13.080 | 11.849 | 0.238 | 2.672 | 1.037 |
| 315.0 | 24.9 | 314.9 | 1.701 | 13.513 | 13.568 | 0.378 | 2.329 | 1.016 |
| 330.0 | 24.8 | 329.3 | 2.288 | 11.142 | 13.493 | 0.484 | 1.862 | 1.061 |
| 345.0 | 24.8 | 343.9 | 2.477 | 10.071 | 13.563 | 0.545 | 1.762 | 1.103 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.63: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.1 | -0.5 | 2.796 | 8.710 | 13.815 | 0.599 | 1.742 | 1.363 |
| 15.0 | 30.0 | 14.6 | 2.870 | 9.065 | 13.606 | 0.594 | 1.722 | 1.344 |
| 30.0 | 30.0 | 29.6 | 2.283 | 11.309 | 14.044 | 0.539 | 1.735 | 1.286 |
| 45.0 | 30.0 | 44.4 | 1.946 | 9.932 | 14.902 | 0.442 | 1.625 | 1.229 |
| 60.0 | 29.9 | 58.8 | 1.455 | 9.642 | 14.636 | 0.306 | 1.388 | 1.138 |
| 75.0 | 30.0 | 73.8 | 1.316 | 11.753 | 14.126 | 0.176 | 2.044 | 1.120 |
| 90.0 | 29.9 | 88.6 | 6.126 | 17.504 | 12.957 | 0.196 | 2.024 | 0.880 |
| 105.0 | 29.8 | 103.3 | 2.845 | 11.640 | 14.491 | 0.217 | 2.075 | 0.756 |
| 120.0 | 29.6 | 118.4 | 1.470 | 10.738 | 11.982 | 0.270 | 2.282 | 0.723 |
| 135.0 | 29.4 | 132.7 | 1.441 | 9.790 | 11.470 | 0.300 | 1.870 | 0.676 |
| 150.0 | 29.2 | 146.3 | 1.132 | 8.980 | 10.299 | 0.300 | 1.260 | 0.674 |
| 165.0 | 29.4 | 159.7 | 1.695 | 10.880 | 9.981 | 0.375 | 1.148 | 0.717 |
| 180.0 | 30.3 | 176.7 | 1.666 | 7.409 | 10.126 | 0.365 | 1.012 | 0.610 |
| 195.0 | 30.6 | 196.2 | 1.863 | 14.128 | 10.480 | 0.435 | 2.022 | 0.749 |
| 210.0 | 30.9 | 210.9 | 1.218 | 9.276 | 10.394 | 0.302 | 1.765 | 0.745 |
| 225.0 | 30.0 | 224.9 | 0.947 | 9.291 | 10.064 | 0.226 | 1.846 | 0.956 |
| 240.0 | 29.7 | 240.1 | 1.804 | 13.016 | 10.202 | 0.248 | 2.812 | 0.974 |
| 255.0 | 29.6 | 254.9 | 5.370 | 17.343 | 10.817 | 0.346 | 2.997 | 1.292 |
| 270.0 | 29.9 | 270.8 | 1.033 | 13.241 | 11.555 | 0.151 | 3.369 | 1.323 |
| 285.0 | 30.0 | 285.2 | 0.716 | 12.708 | 12.399 | 0.162 | 3.190 | 1.699 |
| 300.0 | 30.1 | 300.4 | 1.205 | 13.892 | 12.609 | 0.249 | 2.659 | 1.040 |
| 315.0 | 30.1 | 315.1 | 1.685 | 13.686 | 14.284 | 0.396 | 2.385 | 1.144 |
| 330.0 | 30.1 | 329.8 | 2.121 | 12.315 | 14.420 | 0.509 | 2.121 | 1.266 |
| 345.0 | 30.1 | 344.6 | 2.583 | 10.512 | 14.624 | 0.573 | 1.835 | 1.342 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.64: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.7 | -1.3 | 0.744 | 7.478 | 11.097 | 0.176 | 1.209 | 0.725 |
| 15.0 | 0.7 | 12.9 | 0.697 | 5.630 | 11.067 | 0.175 | 1.152 | 0.702 |
| 30.0 | 1.7 | 26.6 | 0.647 | 5.718 | 11.446 | 0.161 | 1.127 | 0.682 |
| 45.0 | 2.5 | 41.8 | 0.564 | 5.992 | 11.810 | 0.136 | 1.094 | 0.654 |
| 60.0 | 2.6 | 58.7 | 0.644 | 6.030 | 11.804 | 0.093 | 0.979 | 0.593 |
| 75.0 | 1.7 | 77.0 | 0.300 | 5.918 | 11.142 | 0.056 | 0.867 | 0.477 |
| 90.0 | 0.9 | 94.9 | 0.430 | 6.656 | 10.593 | 0.049 | 0.891 | 0.409 |
| 105.0 | 0.1 | 109.7 | 0.417 | 8.011 | 10.669 | 0.056 | 0.953 | 0.418 |
| 120.0 | -1.2 | 125.3 | 0.500 | 6.365 | 10.712 | 0.077 | 1.030 | 0.471 |
| 135.0 | -2.4 | 140.3 | 0.564 | 6.326 | 11.034 | 0.113 | 0.976 | 0.505 |
| 150.0 | -2.9 | 154.1 | 0.567 | 5.547 | 10.973 | 0.136 | 0.781 | 0.473 |
| 165.0 | -2.8 | 165.8 | 0.600 | 5.385 | 10.972 | 0.148 | 0.603 | 0.424 |
| 180.0 | -2.1 | 177.6 | 0.672 | 5.543 | 10.678 | 0.156 | 0.644 | 0.401 |
| 195.0 | -1.0 | 191.8 | 0.833 | 6.813 | 10.524 | 0.150 | 0.901 | 0.400 |
| 210.0 | 0.1 | 209.9 | 0.777 | 7.543 | 10.709 | 0.130 | 1.209 | 0.434 |
| 225.0 | 0.3 | 229.9 | 0.591 | 7.848 | 11.006 | 0.093 | 1.413 | 0.464 |
| 240.0 | -0.1 | 248.0 | 0.423 | 8.390 | 11.198 | 0.064 | 1.563 | 0.528 |
| 255.0 | -0.9 | 262.0 | 0.333 | 8.375 | 10.850 | 0.044 | 1.547 | 0.551 |
| 270.0 | -1.6 | 274.8 | 0.222 | 8.072 | 10.894 | 0.039 | 1.506 | 0.570 |
| 285.0 | -2.4 | 286.8 | 0.329 | 7.728 | 10.716 | 0.052 | 1.398 | 0.592 |
| 300.0 | -3.7 | 302.0 | 0.418 | 7.649 | 10.851 | 0.091 | 1.285 | 0.681 |
| 315.0 | -3.6 | 316.8 | 0.799 | 7.682 | 11.067 | 0.127 | 1.206 | 0.726 |
| 330.0 | -2.9 | 331.7 | 0.603 | 7.783 | 10.927 | 0.151 | 1.188 | 0.738 |
| 345.0 | -1.8 | 345.9 | 0.681 | 8.030 | 11.078 | 0.167 | 1.194 | 0.736 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.65: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.6 | -22.8 | 0.837 | 8.194 | 11.124 | 0.170 | 1.377 | 0.683 |
| 15.0 | 2.9 | -7.4 | 0.835 | 7.379 | 11.045 | 0.191 | 1.317 | 0.698 |
| 30.0 | 3.4 | 9.2 | 0.911 | 7.299 | 11.050 | 0.194 | 1.239 | 0.704 |
| 45.0 | 4.1 | 27.0 | 0.725 | 5.992 | 11.079 | 0.175 | 1.122 | 0.692 |
| 60.0 | 4.7 | 48.0 | 0.548 | 6.043 | 11.361 | 0.125 | 0.976 | 0.648 |
| 75.0 | 4.9 | 66.8 | 0.304 | 5.656 | 11.420 | 0.070 | 0.866 | 0.559 |
| 90.0 | 4.6 | 83.1 | 0.272 | 5.826 | 10.928 | 0.037 | 0.873 | 0.440 |
| 105.0 | 4.3 | 97.1 | 0.312 | 7.101 | 10.449 | 0.039 | 0.851 | 0.374 |
| 120.0 | 4.0 | 108.9 | 0.309 | 6.943 | 10.422 | 0.045 | 0.780 | 0.372 |
| 135.0 | 3.5 | 121.0 | 0.404 | 6.458 | 10.712 | 0.060 | 0.678 | 0.381 |
| 150.0 | 3.1 | 133.4 | 0.476 | 6.188 | 10.914 | 0.080 | 0.585 | 0.397 |
| 165.0 | 2.8 | 145.1 | 0.548 | 5.774 | 11.057 | 0.103 | 0.529 | 0.425 |
| 180.0 | 2.6 | 156.9 | 0.624 | 5.305 | 11.081 | 0.119 | 0.488 | 0.447 |
| 195.0 | 2.5 | 169.3 | 0.760 | 5.596 | 10.952 | 0.132 | 0.493 | 0.464 |
| 210.0 | 2.7 | 183.2 | 0.802 | 5.338 | 10.790 | 0.133 | 0.571 | 0.479 |
| 225.0 | 3.7 | 209.2 | 0.679 | 7.855 | 10.546 | 0.112 | 0.953 | 0.456 |
| 240.0 | 4.6 | 237.6 | 0.494 | 8.041 | 10.568 | 0.078 | 1.435 | 0.483 |
| 255.0 | 4.5 | 251.8 | 0.354 | 7.703 | 10.578 | 0.059 | 1.506 | 0.517 |
| 270.0 | 4.1 | 266.2 | 0.415 | 8.077 | 10.876 | 0.050 | 1.530 | 0.544 |
| 285.0 | 3.8 | 279.0 | 0.326 | 8.835 | 10.654 | 0.039 | 1.504 | 0.560 |
| 300.0 | 3.3 | 290.2 | 0.385 | 8.212 | 10.722 | 0.043 | 1.459 | 0.565 |
| 315.0 | 3.0 | 300.5 | 0.406 | 8.256 | 10.935 | 0.067 | 1.441 | 0.592 |
| 330.0 | 2.7 | 311.4 | 0.648 | 8.358 | 10.873 | 0.101 | 1.422 | 0.636 |
| 345.0 | 2.6 | 323.6 | 0.844 | 8.377 | 10.966 | 0.138 | 1.404 | 0.663 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.66: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.4 | -24.1 | 1.076 | 8.507 | 10.976 | 0.192 | 1.446 | 0.712 |
| 15.0 | 7.4 | -12.0 | 1.089 | 7.750 | 11.020 | 0.214 | 1.409 | 0.725 |
| 30.0 | 7.6 | 2.2 | 0.923 | 7.560 | 11.040 | 0.223 | 1.343 | 0.730 |
| 45.0 | 7.9 | 19.7 | 0.817 | 6.523 | 11.123 | 0.207 | 1.187 | 0.722 |
| 60.0 | 8.3 | 39.5 | 0.644 | 6.297 | 11.368 | 0.161 | 0.980 | 0.686 |
| 75.0 | 8.6 | 61.1 | 0.331 | 6.069 | 11.620 | 0.089 | 0.753 | 0.599 |
| 90.0 | 8.9 | 82.5 | 0.215 | 6.866 | 10.893 | 0.040 | 0.900 | 0.420 |
| 105.0 | 8.6 | 94.8 | 0.278 | 8.381 | 10.235 | 0.046 | 0.850 | 0.319 |
| 120.0 | 8.3 | 105.8 | 0.359 | 9.068 | 10.094 | 0.055 | 0.759 | 0.272 |
| 135.0 | 8.1 | 114.5 | 0.348 | 8.484 | 10.050 | 0.060 | 0.596 | 0.302 |
| 150.0 | 8.0 | 127.8 | 0.441 | 7.751 | 10.247 | 0.074 | 0.522 | 0.312 |
| 165.0 | 7.8 | 141.5 | 0.519 | 6.444 | 10.673 | 0.085 | 0.402 | 0.324 |
| 180.0 | 7.7 | 155.3 | 0.718 | 6.103 | 10.538 | 0.100 | 0.296 | 0.342 |
| 195.0 | 7.7 | 171.9 | 0.723 | 6.009 | 10.527 | 0.109 | 0.374 | 0.371 |
| 210.0 | 8.7 | 201.6 | 0.861 | 7.786 | 10.406 | 0.102 | 0.945 | 0.458 |
| 225.0 | 9.3 | 223.0 | 0.885 | 9.295 | 10.443 | 0.091 | 1.372 | 0.504 |
| 240.0 | 9.6 | 239.4 | 0.538 | 8.805 | 10.435 | 0.078 | 1.559 | 0.525 |
| 255.0 | 9.7 | 254.2 | 0.525 | 8.930 | 10.644 | 0.068 | 1.729 | 0.613 |
| 270.0 | 9.5 | 268.7 | 0.357 | 8.974 | 10.590 | 0.060 | 1.740 | 0.612 |
| 285.0 | 9.3 | 282.5 | 0.427 | 9.037 | 10.733 | 0.048 | 1.686 | 0.612 |
| 300.0 | 8.9 | 295.7 | 0.320 | 9.591 | 10.634 | 0.057 | 1.521 | 0.556 |
| 315.0 | 8.2 | 306.6 | 0.510 | 8.893 | 10.635 | 0.092 | 1.454 | 0.600 |
| 330.0 | 7.7 | 315.2 | 0.744 | 8.439 | 10.695 | 0.126 | 1.451 | 0.645 |
| 345.0 | 7.6 | 325.2 | 0.949 | 8.422 | 10.846 | 0.161 | 1.453 | 0.690 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.67: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 13.3 | -6.3 | 1.188 | 7.531 | 11.209 | 0.250 | 1.124 | 0.682 |
| 15.0 | 13.2 | 7.7 | 1.073 | 7.330 | 11.075 | 0.252 | 1.077 | 0.701 |
| 30.0 | 13.3 | 22.6 | 1.005 | 6.774 | 11.199 | 0.232 | 1.012 | 0.711 |
| 45.0 | 13.7 | 38.6 | 0.716 | 6.310 | 11.417 | 0.187 | 0.861 | 0.675 |
| 60.0 | 13.8 | 53.8 | 0.507 | 6.614 | 11.484 | 0.133 | 0.760 | 0.631 |
| 75.0 | 14.3 | 71.1 | 0.312 | 7.722 | 11.623 | 0.075 | 0.960 | 0.471 |
| 90.0 | 14.2 | 85.8 | 0.312 | 8.442 | 10.034 | 0.060 | 1.073 | 0.324 |
| 105.0 | 14.0 | 99.9 | 0.429 | 9.202 | 9.495 | 0.076 | 1.031 | 0.254 |
| 120.0 | 13.4 | 112.4 | 0.500 | 9.765 | 10.232 | 0.095 | 0.833 | 0.323 |
| 135.0 | 13.5 | 127.9 | 0.637 | 9.353 | 10.446 | 0.112 | 0.823 | 0.339 |
| 150.0 | 13.6 | 143.3 | 0.733 | 10.229 | 9.802 | 0.122 | 0.798 | 0.338 |
| 165.0 | 13.7 | 159.4 | 0.626 | 8.660 | 9.847 | 0.132 | 0.812 | 0.357 |
| 180.0 | 14.0 | 176.0 | 0.486 | 7.078 | 9.928 | 0.127 | 0.890 | 0.409 |
| 195.0 | 14.1 | 192.4 | 0.609 | 8.203 | 10.261 | 0.129 | 1.162 | 0.480 |
| 210.0 | 14.2 | 208.8 | 0.811 | 9.627 | 10.268 | 0.121 | 1.362 | 0.513 |
| 225.0 | 14.3 | 224.6 | 0.803 | 9.880 | 10.319 | 0.113 | 1.587 | 0.563 |
| 240.0 | 14.6 | 239.7 | 0.710 | 9.286 | 10.407 | 0.097 | 1.745 | 0.597 |
| 255.0 | 14.7 | 254.8 | 0.600 | 10.293 | 10.397 | 0.084 | 1.928 | 0.745 |
| 270.0 | 14.7 | 269.6 | 0.511 | 9.551 | 10.653 | 0.073 | 2.023 | 0.775 |
| 285.0 | 14.6 | 284.1 | 0.380 | 9.692 | 11.034 | 0.060 | 1.995 | 0.750 |
| 300.0 | 14.5 | 298.4 | 0.377 | 9.358 | 11.052 | 0.073 | 1.690 | 0.617 |
| 315.0 | 14.3 | 312.5 | 0.631 | 9.421 | 10.341 | 0.126 | 1.490 | 0.636 |
| 330.0 | 14.0 | 326.4 | 0.915 | 8.993 | 10.770 | 0.181 | 1.298 | 0.639 |
| 345.0 | 13.7 | 340.2 | 1.047 | 8.140 | 10.856 | 0.224 | 1.182 | 0.654 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.68: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.4 | -2.5 | 1.453 | 8.615 | 11.282 | 0.275 | 0.965 | 0.672 |
| 15.0 | 19.4 | 12.4 | 1.253 | 7.813 | 11.202 | 0.271 | 0.921 | 0.671 |
| 30.0 | 19.4 | 27.2 | 1.100 | 7.877 | 11.171 | 0.244 | 0.865 | 0.677 |
| 45.0 | 19.4 | 42.1 | 0.889 | 7.342 | 11.481 | 0.199 | 0.805 | 0.665 |
| 60.0 | 19.4 | 56.7 | 0.648 | 8.341 | 11.657 | 0.145 | 0.751 | 0.600 |
| 75.0 | 19.7 | 72.5 | 0.345 | 8.613 | 10.716 | 0.087 | 1.183 | 0.474 |
| 90.0 | 19.6 | 87.1 | 0.380 | 9.020 | 9.525 | 0.084 | 1.229 | 0.357 |
| 105.0 | 19.5 | 101.8 | 0.549 | 10.451 | 9.275 | 0.108 | 1.223 | 0.402 |
| 120.0 | 19.5 | 116.7 | 0.745 | 10.682 | 10.406 | 0.145 | 1.052 | 0.452 |
| 135.0 | 19.4 | 131.5 | 0.751 | 10.263 | 9.785 | 0.162 | 1.025 | 0.478 |
| 150.0 | 19.5 | 146.8 | 0.890 | 10.497 | 9.933 | 0.178 | 0.963 | 0.482 |
| 165.0 | 19.5 | 162.4 | 0.737 | 8.794 | 9.981 | 0.189 | 0.938 | 0.499 |
| 180.0 | 19.6 | 177.8 | 0.579 | 7.650 | 10.118 | 0.176 | 0.941 | 0.526 |
| 195.0 | 19.6 | 193.7 | 0.695 | 7.751 | 10.264 | 0.176 | 1.243 | 0.581 |
| 210.0 | 19.5 | 209.1 | 0.717 | 9.347 | 10.356 | 0.157 | 1.447 | 0.633 |
| 225.0 | 19.6 | 224.3 | 0.551 | 9.026 | 10.351 | 0.146 | 1.701 | 0.702 |
| 240.0 | 19.6 | 239.4 | 0.854 | 10.946 | 10.334 | 0.130 | 1.850 | 0.718 |
| 255.0 | 19.8 | 254.7 | 0.494 | 10.575 | 10.507 | 0.106 | 2.067 | 0.909 |
| 270.0 | 19.8 | 269.9 | 0.450 | 10.093 | 10.635 | 0.090 | 2.269 | 0.955 |
| 285.0 | 19.8 | 284.6 | 0.393 | 10.653 | 11.009 | 0.075 | 2.257 | 0.980 |
| 300.0 | 19.8 | 299.1 | 0.366 | 10.319 | 10.574 | 0.087 | 1.847 | 0.701 |
| 315.0 | 19.7 | 313.6 | 0.687 | 10.336 | 10.771 | 0.146 | 1.603 | 0.723 |
| 330.0 | 19.6 | 328.2 | 0.894 | 10.193 | 10.658 | 0.203 | 1.296 | 0.691 |
| 345.0 | 19.5 | 342.8 | 1.292 | 9.229 | 11.033 | 0.249 | 1.090 | 0.665 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.69: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 24.8 | -1.5 | 1.332 | 8.095 | 10.920 | 0.298 | 0.972 | 0.705 |
| 15.0 | 24.8 | 13.5 | 1.273 | 7.373 | 11.347 | 0.293 | 0.936 | 0.711 |
| 30.0 | 24.8 | 28.4 | 1.071 | 7.249 | 11.340 | 0.261 | 0.911 | 0.713 |
| 45.0 | 24.8 | 43.2 | 0.838 | 8.178 | 11.641 | 0.213 | 0.833 | 0.694 |
| 60.0 | 24.7 | 57.8 | 0.702 | 8.269 | 11.674 | 0.159 | 0.761 | 0.614 |
| 75.0 | 24.9 | 73.2 | 0.435 | 8.931 | 10.926 | 0.101 | 1.324 | 0.538 |
| 90.0 | 24.9 | 87.9 | 0.455 | 9.936 | 9.506 | 0.103 | 1.351 | 0.456 |
| 105.0 | 24.8 | 102.7 | 0.741 | 11.158 | 9.332 | 0.133 | 1.351 | 0.520 |
| 120.0 | 24.8 | 117.7 | 0.868 | 10.845 | 10.419 | 0.174 | 1.048 | 0.463 |
| 135.0 | 24.7 | 132.5 | 0.900 | 10.600 | 9.756 | 0.198 | 0.933 | 0.495 |
| 150.0 | 24.7 | 147.6 | 0.893 | 9.705 | 9.769 | 0.233 | 0.855 | 0.501 |
| 165.0 | 24.8 | 163.1 | 0.851 | 8.867 | 9.997 | 0.241 | 0.772 | 0.518 |
| 180.0 | 25.0 | 178.5 | 0.648 | 6.772 | 10.024 | 0.213 | 0.703 | 0.498 |
| 195.0 | 25.0 | 194.2 | 0.708 | 7.718 | 10.321 | 0.227 | 1.118 | 0.629 |
| 210.0 | 24.9 | 209.3 | 0.741 | 8.201 | 10.320 | 0.198 | 1.328 | 0.685 |
| 225.0 | 24.9 | 224.3 | 0.719 | 9.173 | 10.404 | 0.176 | 1.645 | 0.817 |
| 240.0 | 24.8 | 239.4 | 0.712 | 9.910 | 10.495 | 0.153 | 1.808 | 0.825 |
| 255.0 | 24.8 | 254.7 | 0.606 | 10.811 | 10.626 | 0.134 | 2.156 | 1.115 |
| 270.0 | 24.8 | 269.8 | 0.495 | 10.801 | 10.418 | 0.109 | 2.427 | 1.198 |
| 285.0 | 24.9 | 284.5 | 0.495 | 10.993 | 10.616 | 0.090 | 2.412 | 1.153 |
| 300.0 | 25.0 | 299.4 | 0.400 | 10.681 | 10.855 | 0.100 | 1.857 | 0.744 |
| 315.0 | 24.9 | 314.1 | 0.768 | 12.261 | 10.826 | 0.160 | 1.623 | 0.774 |
| 330.0 | 24.9 | 328.9 | 1.141 | 10.522 | 10.898 | 0.226 | 1.352 | 0.736 |
| 345.0 | 24.8 | 343.7 | 1.301 | 9.192 | 11.097 | 0.274 | 1.074 | 0.715 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table S.70: Accelerations at Hangar Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.0 | -0.9 | 1.417 | 8.068 | 11.589 | 0.316 | 1.039 | 0.746 |
| 15.0 | 30.0 | 14.1 | 1.393 | 7.782 | 11.589 | 0.308 | 1.014 | 0.746 |
| 30.0 | 30.0 | 28.9 | 1.197 | 7.927 | 11.502 | 0.278 | 0.972 | 0.751 |
| 45.0 | 30.0 | 43.8 | 1.002 | 8.035 | 11.480 | 0.224 | 0.850 | 0.730 |
| 60.0 | 30.0 | 58.5 | 0.780 | 8.612 | 11.558 | 0.168 | 0.752 | 0.648 |
| 75.0 | 30.1 | 73.7 | 0.549 | 8.880 | 11.262 | 0.116 | 1.486 | 0.660 |
| 90.0 | 30.0 | 88.4 | 0.601 | 10.097 | 9.697 | 0.120 | 1.494 | 0.564 |
| 105.0 | 30.0 | 103.2 | 1.165 | 11.201 | 10.192 | 0.155 | 1.436 | 0.594 |
| 120.0 | 29.9 | 118.4 | 1.005 | 9.327 | 10.638 | 0.202 | 1.159 | 0.434 |
| 135.0 | 29.8 | 133.1 | 1.034 | 9.467 | 10.138 | 0.235 | 0.940 | 0.433 |
| 150.0 | 29.9 | 148.2 | 0.807 | 7.796 | 10.040 | 0.259 | 0.677 | 0.414 |
| 165.0 | 30.1 | 163.4 | 0.993 | 8.352 | 9.801 | 0.252 | 0.564 | 0.427 |
| 180.0 | 30.4 | 178.7 | 0.977 | 7.142 | 10.133 | 0.277 | 0.658 | 0.467 |
| 195.0 | 30.4 | 194.1 | 0.817 | 7.893 | 10.226 | 0.238 | 0.737 | 0.483 |
| 210.0 | 30.2 | 209.5 | 1.016 | 9.314 | 10.413 | 0.243 | 1.314 | 0.685 |
| 225.0 | 30.1 | 224.6 | 0.913 | 9.751 | 10.334 | 0.225 | 1.696 | 0.926 |
| 240.0 | 30.1 | 239.6 | 0.714 | 9.425 | 10.464 | 0.179 | 1.797 | 0.905 |
| 255.0 | 29.9 | 254.7 | 0.726 | 11.370 | 10.445 | 0.161 | 2.172 | 1.341 |
| 270.0 | 29.9 | 269.6 | 0.692 | 10.894 | 10.476 | 0.133 | 2.490 | 1.407 |
| 285.0 | 29.9 | 284.6 | 0.770 | 11.391 | 10.561 | 0.118 | 2.498 | 1.429 |
| 300.0 | 30.1 | 299.5 | 0.474 | 11.342 | 10.871 | 0.111 | 1.839 | 0.766 |
| 315.0 | 30.1 | 314.4 | 0.805 | 12.224 | 11.264 | 0.169 | 1.573 | 0.740 |
| 330.0 | 30.1 | 329.3 | 1.087 | 10.503 | 10.972 | 0.241 | 1.267 | 0.756 |
| 345.0 | 30.0 | 344.2 | 1.308 | 9.245 | 11.120 | 0.292 | 1.114 | 0.743 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex T

Tables of Hangar Deck Accelerations – JONSWAP Spectrum (Coastal Waters)

Table T.1: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -28.4 | 0.798 | 1.939 | 10.520 | 0.185 | 0.370 | 0.265 |
| 15.0 | -0.2 | -6.7 | 0.761 | 0.931 | 10.463 | 0.167 | 0.148 | 0.222 |
| 30.0 | -0.2 | 20.1 | 0.727 | 1.745 | 10.448 | 0.174 | 0.286 | 0.222 |
| 45.0 | -0.2 | 35.0 | 0.738 | 2.203 | 10.546 | 0.190 | 0.491 | 0.248 |
| 60.0 | -0.4 | 43.8 | 0.837 | 2.679 | 10.745 | 0.197 | 0.646 | 0.276 |
| 75.0 | -0.6 | 50.6 | 0.757 | 3.781 | 11.361 | 0.199 | 0.754 | 0.307 |
| 90.0 | -0.7 | 56.8 | 0.850 | 4.635 | 11.804 | 0.197 | 0.892 | 0.350 |
| 105.0 | -0.8 | 60.5 | 0.811 | 4.569 | 11.545 | 0.194 | 0.933 | 0.374 |
| 120.0 | -0.9 | 65.1 | 0.818 | 6.507 | 12.491 | 0.178 | 0.968 | 0.432 |
| 135.0 | -2.1 | 102.4 | 0.857 | 6.953 | 12.703 | 0.160 | 1.074 | 0.505 |
| 150.0 | -2.2 | 104.5 | 0.884 | 5.724 | 11.931 | 0.167 | 1.019 | 0.484 |
| 165.0 | -2.4 | 103.6 | 1.059 | 6.183 | 12.321 | 0.155 | 1.012 | 0.520 |
| 180.0 | -0.8 | 59.1 | 0.773 | 3.490 | 11.720 | 0.164 | 0.593 | 0.312 |
| 195.0 | -0.2 | 352.3 | 0.753 | 2.775 | 11.215 | 0.185 | 0.612 | 0.304 |
| 210.0 | -0.2 | 382.7 | 0.826 | 3.719 | 11.978 | 0.195 | 0.688 | 0.370 |
| 225.0 | 0.0 | 379.0 | 0.760 | 3.562 | 11.688 | 0.203 | 0.741 | 0.369 |
| 240.0 | 0.7 | 294.4 | 0.802 | 3.547 | 11.606 | 0.202 | 0.916 | 0.469 |
| 255.0 | 0.5 | 293.5 | 0.801 | 3.646 | 11.647 | 0.201 | 0.938 | 0.489 |
| 270.0 | 0.3 | 296.5 | 0.787 | 3.951 | 12.113 | 0.204 | 0.932 | 0.474 |
| 285.0 | 0.1 | 300.8 | 0.681 | 3.286 | 11.507 | 0.209 | 0.865 | 0.436 |
| 300.0 | 0.0 | 305.3 | 0.750 | 3.310 | 11.061 | 0.209 | 0.795 | 0.402 |
| 315.0 | -0.0 | 309.8 | 0.801 | 3.029 | 11.105 | 0.209 | 0.713 | 0.370 |
| 330.0 | -0.1 | 315.0 | 0.822 | 2.881 | 10.841 | 0.205 | 0.609 | 0.337 |
| 345.0 | -0.1 | 321.5 | 0.818 | 2.505 | 10.789 | 0.198 | 0.502 | 0.303 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.2: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.1 | 0.697 | 0.960 | 10.596 | 0.192 | 0.143 | 0.267 |
| 15.0 | 4.8 | 12.8 | 0.794 | 1.042 | 10.584 | 0.195 | 0.192 | 0.266 |
| 30.0 | 4.7 | 27.8 | 0.925 | 1.343 | 10.610 | 0.209 | 0.301 | 0.282 |
| 45.0 | 4.7 | 42.2 | 0.844 | 2.305 | 10.665 | 0.225 | 0.488 | 0.317 |
| 60.0 | 4.4 | 53.9 | 0.864 | 3.276 | 10.976 | 0.229 | 0.676 | 0.361 |
| 75.0 | 4.1 | 56.6 | 0.796 | 3.942 | 11.130 | 0.225 | 0.743 | 0.377 |
| 90.0 | 4.1 | 60.8 | 0.749 | 4.418 | 11.867 | 0.220 | 0.823 | 0.407 |
| 105.0 | 4.1 | 63.1 | 0.751 | 4.247 | 11.636 | 0.216 | 0.849 | 0.418 |
| 120.0 | 4.1 | 64.0 | 0.712 | 3.326 | 11.602 | 0.215 | 0.842 | 0.427 |
| 135.0 | 4.0 | 64.2 | 0.728 | 3.443 | 11.569 | 0.217 | 0.835 | 0.426 |
| 150.0 | 4.1 | 74.6 | 0.847 | 3.288 | 11.365 | 0.209 | 0.778 | 0.395 |
| 165.0 | 4.9 | 163.1 | 0.364 | 1.495 | 10.304 | 0.096 | 0.283 | 0.100 |
| 180.0 | 4.9 | 178.7 | 0.357 | 1.029 | 10.284 | 0.090 | 0.185 | 0.094 |
| 195.0 | 4.9 | 194.1 | 0.348 | 1.234 | 10.328 | 0.092 | 0.262 | 0.104 |
| 210.0 | 4.8 | 210.3 | 0.397 | 1.871 | 10.423 | 0.105 | 0.425 | 0.136 |
| 225.0 | 4.5 | 283.4 | 0.760 | 4.166 | 12.237 | 0.194 | 0.911 | 0.562 |
| 240.0 | 4.6 | 285.3 | 0.671 | 3.397 | 12.493 | 0.191 | 0.940 | 0.618 |
| 255.0 | 4.5 | 286.8 | 0.743 | 3.906 | 12.725 | 0.198 | 0.936 | 0.613 |
| 270.0 | 4.5 | 288.9 | 0.796 | 3.758 | 12.455 | 0.206 | 0.918 | 0.591 |
| 285.0 | 4.7 | 291.3 | 0.895 | 3.740 | 12.213 | 0.218 | 0.896 | 0.555 |
| 300.0 | 4.9 | 301.2 | 0.816 | 3.515 | 11.317 | 0.236 | 0.764 | 0.436 |
| 315.0 | 4.8 | 314.0 | 0.934 | 2.429 | 10.907 | 0.234 | 0.551 | 0.353 |
| 330.0 | 4.8 | 328.1 | 0.840 | 1.889 | 10.683 | 0.218 | 0.357 | 0.306 |
| 345.0 | 4.8 | 343.0 | 0.768 | 1.159 | 10.649 | 0.201 | 0.191 | 0.279 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.3: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.851 | 0.903 | 10.726 | 0.214 | 0.103 | 0.311 |
| 15.0 | 10.0 | 14.4 | 0.777 | 0.997 | 10.738 | 0.220 | 0.147 | 0.306 |
| 30.0 | 10.0 | 29.4 | 0.942 | 1.397 | 10.736 | 0.237 | 0.278 | 0.310 |
| 45.0 | 9.9 | 44.5 | 0.923 | 2.252 | 10.854 | 0.253 | 0.467 | 0.329 |
| 60.0 | 10.0 | 59.1 | 0.892 | 3.849 | 11.062 | 0.252 | 0.693 | 0.426 |
| 75.0 | 10.0 | 73.0 | 0.812 | 4.851 | 11.968 | 0.214 | 0.837 | 0.630 |
| 90.0 | 9.7 | 86.0 | 0.405 | 5.699 | 12.783 | 0.088 | 0.921 | 0.791 |
| 105.0 | 9.4 | 100.8 | 0.676 | 5.650 | 12.152 | 0.109 | 0.991 | 0.490 |
| 120.0 | 9.6 | 116.9 | 0.370 | 3.669 | 10.988 | 0.097 | 0.910 | 0.264 |
| 135.0 | 9.9 | 133.2 | 0.284 | 3.161 | 10.281 | 0.085 | 1.012 | 0.147 |
| 150.0 | 10.0 | 148.8 | 0.239 | 3.389 | 10.138 | 0.074 | 1.086 | 0.119 |
| 165.0 | 10.1 | 164.1 | 0.249 | 3.691 | 10.028 | 0.065 | 0.882 | 0.093 |
| 180.0 | 10.1 | 179.2 | 0.233 | 2.393 | 9.927 | 0.062 | 0.536 | 0.059 |
| 195.0 | 10.1 | 194.7 | 0.242 | 1.892 | 10.069 | 0.068 | 0.515 | 0.053 |
| 210.0 | 10.1 | 210.3 | 0.258 | 2.429 | 10.187 | 0.075 | 0.847 | 0.086 |
| 225.0 | 10.0 | 225.9 | 0.284 | 2.964 | 10.412 | 0.087 | 0.915 | 0.145 |
| 240.0 | 9.7 | 242.3 | 0.393 | 2.919 | 10.991 | 0.101 | 0.914 | 0.264 |
| 255.0 | 9.5 | 259.2 | 0.687 | 4.452 | 12.008 | 0.118 | 1.031 | 0.522 |
| 270.0 | 9.8 | 273.7 | 0.452 | 5.059 | 12.965 | 0.076 | 0.989 | 0.848 |
| 285.0 | 10.2 | 286.6 | 0.847 | 3.287 | 12.370 | 0.214 | 0.881 | 0.720 |
| 300.0 | 10.1 | 300.1 | 0.952 | 3.390 | 11.237 | 0.256 | 0.720 | 0.488 |
| 315.0 | 10.0 | 314.7 | 0.904 | 2.020 | 10.961 | 0.258 | 0.474 | 0.352 |
| 330.0 | 10.0 | 329.6 | 0.945 | 1.588 | 10.811 | 0.242 | 0.283 | 0.319 |
| 345.0 | 10.0 | 344.6 | 0.807 | 1.159 | 10.642 | 0.223 | 0.150 | 0.311 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.4: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.2 | 0.857 | 1.046 | 10.707 | 0.236 | 0.097 | 0.306 |
| 15.0 | 15.2 | 14.8 | 0.794 | 1.143 | 10.786 | 0.243 | 0.151 | 0.304 |
| 30.0 | 15.1 | 29.8 | 0.960 | 1.571 | 10.808 | 0.261 | 0.274 | 0.324 |
| 45.0 | 15.1 | 44.8 | 1.004 | 2.431 | 11.072 | 0.277 | 0.450 | 0.388 |
| 60.0 | 15.2 | 59.7 | 1.020 | 3.240 | 11.510 | 0.268 | 0.665 | 0.539 |
| 75.0 | 15.2 | 74.1 | 0.766 | 4.417 | 12.303 | 0.215 | 0.806 | 0.757 |
| 90.0 | 15.1 | 88.5 | 0.279 | 5.437 | 12.899 | 0.047 | 0.902 | 0.794 |
| 105.0 | 15.0 | 103.3 | 0.475 | 7.499 | 12.877 | 0.088 | 1.001 | 0.429 |
| 120.0 | 15.0 | 118.5 | 0.282 | 4.466 | 10.642 | 0.067 | 1.413 | 0.252 |
| 135.0 | 15.2 | 134.3 | 0.218 | 4.369 | 10.269 | 0.052 | 1.445 | 0.207 |
| 150.0 | 15.3 | 149.7 | 0.204 | 3.186 | 10.056 | 0.057 | 0.856 | 0.101 |
| 165.0 | 15.3 | 164.7 | 0.219 | 2.054 | 9.946 | 0.059 | 0.435 | 0.058 |
| 180.0 | 15.2 | 179.5 | 0.296 | 2.421 | 9.922 | 0.062 | 0.340 | 0.057 |
| 195.0 | 15.2 | 194.7 | 0.178 | 2.205 | 9.862 | 0.055 | 0.411 | 0.037 |
| 210.0 | 15.2 | 209.8 | 0.171 | 2.476 | 9.899 | 0.043 | 0.605 | 0.043 |
| 225.0 | 15.2 | 225.4 | 0.237 | 3.978 | 10.348 | 0.055 | 1.434 | 0.120 |
| 240.0 | 15.1 | 241.1 | 0.233 | 4.297 | 10.638 | 0.073 | 1.405 | 0.201 |
| 255.0 | 15.0 | 256.7 | 0.578 | 4.594 | 12.168 | 0.096 | 1.073 | 0.426 |
| 270.0 | 15.1 | 271.5 | 0.323 | 4.938 | 12.756 | 0.042 | 1.021 | 0.846 |
| 285.0 | 15.3 | 285.8 | 0.768 | 3.511 | 12.468 | 0.213 | 0.894 | 0.837 |
| 300.0 | 15.2 | 300.1 | 0.966 | 2.562 | 11.463 | 0.269 | 0.672 | 0.607 |
| 315.0 | 15.1 | 314.8 | 0.950 | 1.889 | 11.188 | 0.280 | 0.450 | 0.429 |
| 330.0 | 15.1 | 329.8 | 0.968 | 1.476 | 11.075 | 0.264 | 0.260 | 0.342 |
| 345.0 | 15.2 | 344.8 | 0.886 | 0.978 | 10.853 | 0.244 | 0.132 | 0.311 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.5: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.865 | 1.140 | 11.259 | 0.252 | 0.103 | 0.401 |
| 15.0 | 20.3 | 14.9 | 0.865 | 1.317 | 11.257 | 0.259 | 0.153 | 0.412 |
| 30.0 | 20.3 | 29.9 | 0.982 | 1.630 | 11.338 | 0.280 | 0.265 | 0.468 |
| 45.0 | 20.3 | 44.9 | 1.030 | 2.359 | 11.603 | 0.295 | 0.433 | 0.564 |
| 60.0 | 20.3 | 59.8 | 1.048 | 3.540 | 11.899 | 0.282 | 0.642 | 0.708 |
| 75.0 | 20.4 | 74.5 | 0.768 | 4.251 | 12.462 | 0.217 | 0.791 | 0.868 |
| 90.0 | 20.3 | 89.1 | 0.322 | 6.503 | 12.579 | 0.041 | 0.897 | 0.788 |
| 105.0 | 20.2 | 104.1 | 0.407 | 5.899 | 11.674 | 0.070 | 1.097 | 0.394 |
| 120.0 | 20.3 | 119.3 | 0.193 | 5.561 | 10.548 | 0.042 | 1.835 | 0.304 |
| 135.0 | 20.2 | 134.8 | 0.226 | 4.646 | 10.165 | 0.057 | 1.510 | 0.182 |
| 150.0 | 20.4 | 149.8 | 0.254 | 2.855 | 9.948 | 0.064 | 0.723 | 0.071 |
| 165.0 | 20.3 | 164.6 | 0.325 | 2.772 | 9.895 | 0.066 | 0.382 | 0.058 |
| 180.0 | 20.6 | 179.8 | 0.267 | 3.263 | 9.909 | 0.068 | 0.324 | 0.054 |
| 195.0 | 20.4 | 194.7 | 0.320 | 3.714 | 9.887 | 0.063 | 0.577 | 0.087 |
| 210.0 | 20.3 | 209.8 | 0.294 | 4.203 | 9.899 | 0.060 | 0.888 | 0.122 |
| 225.0 | 20.3 | 225.1 | 0.185 | 4.865 | 9.914 | 0.048 | 1.404 | 0.148 |
| 240.0 | 20.3 | 240.6 | 0.247 | 5.296 | 10.916 | 0.050 | 1.967 | 0.197 |
| 255.0 | 20.2 | 255.9 | 0.367 | 4.599 | 11.449 | 0.078 | 1.184 | 0.363 |
| 270.0 | 20.3 | 270.9 | 0.285 | 4.992 | 12.721 | 0.039 | 1.068 | 0.832 |
| 285.0 | 20.4 | 285.5 | 0.904 | 4.359 | 13.016 | 0.211 | 0.932 | 0.939 |
| 300.0 | 20.3 | 300.1 | 0.915 | 2.429 | 12.074 | 0.280 | 0.684 | 0.770 |
| 315.0 | 20.3 | 315.0 | 0.994 | 1.915 | 11.753 | 0.295 | 0.441 | 0.607 |
| 330.0 | 20.3 | 329.9 | 1.009 | 1.382 | 11.449 | 0.280 | 0.254 | 0.493 |
| 345.0 | 20.3 | 344.9 | 0.845 | 1.071 | 11.419 | 0.259 | 0.139 | 0.424 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.6: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.938 | 1.292 | 11.471 | 0.259 | 0.124 | 0.570 |
| 15.0 | 25.4 | 14.9 | 0.839 | 1.376 | 11.584 | 0.267 | 0.149 | 0.593 |
| 30.0 | 25.4 | 29.9 | 0.955 | 2.008 | 11.822 | 0.290 | 0.252 | 0.673 |
| 45.0 | 25.4 | 44.9 | 1.078 | 2.671 | 12.223 | 0.307 | 0.418 | 0.783 |
| 60.0 | 25.4 | 59.8 | 1.024 | 3.489 | 12.234 | 0.293 | 0.634 | 0.889 |
| 75.0 | 25.4 | 74.6 | 0.763 | 4.336 | 13.033 | 0.217 | 0.792 | 0.970 |
| 90.0 | 25.4 | 89.4 | 0.270 | 6.820 | 12.842 | 0.040 | 0.901 | 0.780 |
| 105.0 | 25.4 | 104.4 | 0.285 | 6.069 | 11.514 | 0.056 | 1.245 | 0.362 |
| 120.0 | 25.3 | 119.7 | 0.385 | 7.137 | 10.840 | 0.060 | 2.434 | 0.358 |
| 135.0 | 25.3 | 134.9 | 0.313 | 4.603 | 9.900 | 0.065 | 1.286 | 0.138 |
| 150.0 | 25.5 | 149.8 | 0.346 | 2.647 | 9.934 | 0.074 | 0.557 | 0.064 |
| 165.0 | 25.5 | 164.8 | 0.356 | 2.386 | 9.997 | 0.077 | 0.350 | 0.067 |
| 180.0 | 25.4 | 179.8 | 0.388 | 3.439 | 9.976 | 0.083 | 0.492 | 0.098 |
| 195.0 | 25.5 | 194.9 | 0.797 | 3.562 | 9.986 | 0.079 | 0.559 | 0.096 |
| 210.0 | 25.4 | 210.0 | 0.381 | 3.790 | 9.946 | 0.072 | 0.788 | 0.114 |
| 225.0 | 25.3 | 225.0 | 0.267 | 5.224 | 9.885 | 0.061 | 1.364 | 0.187 |
| 240.0 | 25.3 | 240.2 | 0.298 | 6.641 | 10.530 | 0.053 | 2.349 | 0.283 |
| 255.0 | 25.4 | 255.5 | 0.334 | 4.973 | 11.381 | 0.065 | 1.357 | 0.309 |
| 270.0 | 25.4 | 270.6 | 0.287 | 5.224 | 12.699 | 0.042 | 1.095 | 0.818 |
| 285.0 | 25.4 | 285.3 | 0.795 | 4.374 | 13.349 | 0.210 | 0.987 | 1.036 |
| 300.0 | 25.4 | 300.1 | 0.970 | 2.682 | 12.387 | 0.287 | 0.731 | 0.946 |
| 315.0 | 25.4 | 315.1 | 1.022 | 1.884 | 12.395 | 0.304 | 0.470 | 0.818 |
| 330.0 | 25.4 | 330.0 | 0.941 | 1.587 | 12.014 | 0.288 | 0.281 | 0.691 |
| 345.0 | 25.4 | 345.0 | 0.827 | 1.174 | 11.672 | 0.267 | 0.162 | 0.601 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.7: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.1 | 0.876 | 1.328 | 11.821 | 0.257 | 0.141 | 0.712 |
| 15.0 | 30.5 | 14.9 | 0.935 | 1.589 | 11.950 | 0.266 | 0.150 | 0.744 |
| 30.0 | 30.5 | 29.9 | 0.956 | 2.055 | 12.189 | 0.292 | 0.238 | 0.848 |
| 45.0 | 30.5 | 44.9 | 1.035 | 2.934 | 12.408 | 0.313 | 0.411 | 0.986 |
| 60.0 | 30.5 | 59.9 | 0.991 | 3.698 | 12.713 | 0.298 | 0.634 | 1.066 |
| 75.0 | 30.5 | 74.7 | 0.727 | 4.320 | 13.291 | 0.219 | 0.782 | 1.068 |
| 90.0 | 30.5 | 89.6 | 0.215 | 5.510 | 13.146 | 0.042 | 0.919 | 0.769 |
| 105.0 | 30.5 | 104.6 | 0.232 | 5.631 | 11.202 | 0.053 | 1.439 | 0.341 |
| 120.0 | 30.4 | 119.9 | 0.445 | 5.872 | 10.330 | 0.076 | 2.195 | 0.304 |
| 135.0 | 30.4 | 134.9 | 0.289 | 3.679 | 9.915 | 0.075 | 1.118 | 0.115 |
| 150.0 | 30.6 | 149.8 | 0.382 | 3.472 | 10.083 | 0.082 | 0.626 | 0.096 |
| 165.0 | 30.4 | 165.0 | 0.456 | 2.531 | 10.040 | 0.087 | 0.443 | 0.100 |
| 180.0 | 30.7 | 179.9 | 0.455 | 3.180 | 10.080 | 0.084 | 0.550 | 0.120 |
| 195.0 | 30.4 | 194.8 | 0.429 | 3.987 | 10.073 | 0.089 | 0.744 | 0.142 |
| 210.0 | 30.6 | 210.0 | 0.336 | 4.371 | 10.041 | 0.084 | 0.940 | 0.146 |
| 225.0 | 30.4 | 225.0 | 0.289 | 4.067 | 9.893 | 0.073 | 1.234 | 0.157 |
| 240.0 | 30.4 | 240.0 | 0.390 | 6.772 | 10.277 | 0.069 | 2.214 | 0.324 |
| 255.0 | 30.5 | 255.3 | 0.323 | 7.984 | 11.551 | 0.061 | 1.643 | 0.278 |
| 270.0 | 30.5 | 270.4 | 0.202 | 5.056 | 12.917 | 0.047 | 1.136 | 0.803 |
| 285.0 | 30.5 | 285.3 | 0.669 | 4.299 | 13.229 | 0.209 | 1.013 | 1.130 |
| 300.0 | 30.5 | 300.1 | 0.971 | 3.120 | 13.068 | 0.291 | 0.794 | 1.116 |
| 315.0 | 30.5 | 315.1 | 1.054 | 2.045 | 12.720 | 0.307 | 0.529 | 1.010 |
| 330.0 | 30.5 | 330.1 | 0.904 | 1.646 | 12.274 | 0.287 | 0.314 | 0.856 |
| 345.0 | 30.5 | 345.0 | 0.833 | 1.383 | 11.996 | 0.266 | 0.191 | 0.749 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.8: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 0.0 | -14.0 | 0.543 | 1.840 | 10.382 | 0.135 | 0.429 | 0.207 |
| 15.0 | -0.1 | -6.1 | 0.579 | 1.294 | 10.381 | 0.136 | 0.276 | 0.200 |
| 30.0 | -0.3 | 2.2 | 0.663 | 1.696 | 10.367 | 0.136 | 0.332 | 0.196 |
| 45.0 | -0.3 | 16.8 | 0.599 | 2.234 | 10.436 | 0.133 | 0.592 | 0.202 |
| 60.0 | -0.2 | 36.1 | 0.532 | 3.118 | 10.542 | 0.125 | 0.857 | 0.226 |
| 75.0 | -0.1 | 52.3 | 0.409 | 3.855 | 10.985 | 0.110 | 0.993 | 0.257 |
| 90.0 | -0.0 | 65.2 | 0.351 | 3.895 | 10.875 | 0.086 | 1.029 | 0.285 |
| 105.0 | -0.1 | 82.6 | 0.211 | 3.223 | 11.108 | 0.032 | 1.023 | 0.321 |
| 120.0 | -0.3 | 97.2 | 0.307 | 3.986 | 11.021 | 0.031 | 1.034 | 0.324 |
| 135.0 | -0.6 | 105.0 | 0.321 | 4.361 | 11.012 | 0.055 | 1.040 | 0.312 |
| 150.0 | -0.9 | 109.1 | 0.373 | 4.097 | 10.958 | 0.067 | 1.031 | 0.304 |
| 165.0 | -0.5 | 40.2 | 0.515 | 3.702 | 10.919 | 0.116 | 0.689 | 0.240 |
| 180.0 | -0.3 | 35.7 | 0.538 | 2.727 | 10.709 | 0.130 | 0.550 | 0.214 |
| 195.0 | 0.1 | 362.1 | 0.507 | 2.734 | 10.595 | 0.126 | 0.666 | 0.226 |
| 210.0 | 0.2 | 354.0 | 0.528 | 3.103 | 10.711 | 0.113 | 0.834 | 0.262 |
| 225.0 | 0.3 | 264.4 | 0.345 | 3.679 | 11.421 | 0.038 | 1.012 | 0.357 |
| 240.0 | 0.3 | 272.2 | 0.294 | 3.491 | 11.398 | 0.029 | 1.006 | 0.367 |
| 255.0 | 0.3 | 283.8 | 0.251 | 3.804 | 11.124 | 0.056 | 0.997 | 0.356 |
| 270.0 | 0.3 | 294.1 | 0.343 | 3.457 | 11.289 | 0.086 | 0.988 | 0.329 |
| 285.0 | 0.2 | 302.8 | 0.411 | 3.325 | 11.187 | 0.104 | 0.965 | 0.301 |
| 300.0 | 0.1 | 311.1 | 0.421 | 3.273 | 10.959 | 0.116 | 0.917 | 0.275 |
| 315.0 | 0.1 | 319.6 | 0.503 | 2.896 | 10.705 | 0.124 | 0.847 | 0.253 |
| 330.0 | 0.1 | 328.7 | 0.486 | 2.707 | 10.591 | 0.128 | 0.738 | 0.233 |
| 345.0 | 0.0 | 337.9 | 0.530 | 2.311 | 10.445 | 0.132 | 0.588 | 0.218 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.9: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.5 | 0.684 | 1.104 | 10.457 | 0.158 | 0.186 | 0.221 |
| 15.0 | 4.8 | 11.8 | 0.625 | 1.566 | 10.446 | 0.157 | 0.345 | 0.221 |
| 30.0 | 4.7 | 26.3 | 0.657 | 2.353 | 10.512 | 0.151 | 0.585 | 0.231 |
| 45.0 | 4.7 | 41.0 | 0.531 | 2.964 | 10.524 | 0.141 | 0.779 | 0.251 |
| 60.0 | 4.7 | 55.3 | 0.453 | 3.325 | 10.985 | 0.123 | 0.901 | 0.281 |
| 75.0 | 4.7 | 69.9 | 0.325 | 3.732 | 11.026 | 0.080 | 0.952 | 0.326 |
| 90.0 | 4.6 | 83.5 | 0.112 | 3.379 | 11.253 | 0.024 | 0.963 | 0.352 |
| 105.0 | 4.4 | 95.7 | 0.170 | 3.756 | 11.187 | 0.021 | 0.971 | 0.338 |
| 120.0 | 4.3 | 104.0 | 0.278 | 3.261 | 11.025 | 0.042 | 0.956 | 0.312 |
| 135.0 | 4.2 | 112.8 | 0.295 | 3.417 | 10.803 | 0.058 | 0.930 | 0.282 |
| 150.0 | 4.2 | 128.2 | 0.350 | 3.113 | 10.587 | 0.075 | 0.809 | 0.233 |
| 165.0 | 4.6 | 161.0 | 0.324 | 1.653 | 10.382 | 0.087 | 0.361 | 0.161 |
| 180.0 | 4.8 | 178.1 | 0.316 | 1.269 | 10.369 | 0.088 | 0.278 | 0.145 |
| 195.0 | 4.9 | 194.6 | 0.338 | 1.589 | 10.393 | 0.086 | 0.433 | 0.146 |
| 210.0 | 4.9 | 211.3 | 0.364 | 2.195 | 10.409 | 0.082 | 0.631 | 0.164 |
| 225.0 | 4.7 | 228.6 | 0.391 | 2.929 | 10.827 | 0.077 | 0.803 | 0.205 |
| 240.0 | 4.7 | 245.3 | 0.268 | 3.201 | 10.759 | 0.062 | 0.917 | 0.266 |
| 255.0 | 4.8 | 258.9 | 0.190 | 3.224 | 10.974 | 0.036 | 0.956 | 0.329 |
| 270.0 | 4.9 | 272.8 | 0.104 | 3.233 | 11.199 | 0.013 | 0.948 | 0.376 |
| 285.0 | 5.0 | 287.0 | 0.300 | 3.674 | 11.350 | 0.071 | 0.913 | 0.365 |
| 300.0 | 5.0 | 301.0 | 0.412 | 2.901 | 10.867 | 0.118 | 0.866 | 0.313 |
| 315.0 | 5.0 | 314.8 | 0.553 | 2.526 | 10.715 | 0.140 | 0.734 | 0.268 |
| 330.0 | 4.9 | 329.0 | 0.573 | 2.258 | 10.517 | 0.150 | 0.572 | 0.245 |
| 345.0 | 4.9 | 343.3 | 0.666 | 1.704 | 10.503 | 0.155 | 0.372 | 0.229 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.10: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.824 | 0.895 | 10.555 | 0.180 | 0.091 | 0.242 |
| 15.0 | 10.0 | 14.4 | 0.748 | 1.506 | 10.497 | 0.176 | 0.265 | 0.239 |
| 30.0 | 10.0 | 29.4 | 0.710 | 2.136 | 10.655 | 0.169 | 0.470 | 0.244 |
| 45.0 | 10.1 | 44.4 | 0.575 | 2.435 | 10.728 | 0.155 | 0.638 | 0.260 |
| 60.0 | 10.1 | 59.3 | 0.451 | 2.976 | 11.062 | 0.128 | 0.771 | 0.310 |
| 75.0 | 10.1 | 74.0 | 0.296 | 3.189 | 11.508 | 0.070 | 0.796 | 0.362 |
| 90.0 | 10.1 | 88.8 | 0.061 | 3.360 | 11.308 | 0.014 | 0.830 | 0.358 |
| 105.0 | 10.1 | 103.7 | 0.163 | 3.818 | 11.137 | 0.032 | 0.847 | 0.304 |
| 120.0 | 10.0 | 118.3 | 0.225 | 3.818 | 10.781 | 0.048 | 0.896 | 0.250 |
| 135.0 | 10.0 | 133.5 | 0.213 | 3.102 | 10.523 | 0.055 | 0.839 | 0.202 |
| 150.0 | 10.0 | 148.8 | 0.207 | 2.897 | 10.275 | 0.059 | 0.772 | 0.169 |
| 165.0 | 10.0 | 164.0 | 0.320 | 2.867 | 10.325 | 0.062 | 0.602 | 0.142 |
| 180.0 | 10.1 | 179.3 | 0.270 | 2.209 | 10.146 | 0.061 | 0.374 | 0.119 |
| 195.0 | 10.1 | 194.6 | 0.244 | 1.864 | 10.186 | 0.062 | 0.422 | 0.107 |
| 210.0 | 10.1 | 210.2 | 0.261 | 2.231 | 10.240 | 0.060 | 0.709 | 0.119 |
| 225.0 | 10.0 | 225.8 | 0.237 | 2.582 | 10.447 | 0.057 | 0.902 | 0.151 |
| 240.0 | 10.0 | 241.2 | 0.247 | 3.115 | 10.756 | 0.051 | 0.991 | 0.210 |
| 255.0 | 10.1 | 255.9 | 0.181 | 3.578 | 11.058 | 0.036 | 0.953 | 0.284 |
| 270.0 | 10.2 | 270.7 | 0.061 | 3.273 | 11.255 | 0.016 | 0.913 | 0.366 |
| 285.0 | 10.2 | 285.3 | 0.256 | 3.505 | 11.195 | 0.067 | 0.852 | 0.390 |
| 300.0 | 10.1 | 299.9 | 0.443 | 3.019 | 11.155 | 0.127 | 0.778 | 0.341 |
| 315.0 | 10.1 | 314.6 | 0.570 | 2.471 | 10.710 | 0.156 | 0.610 | 0.281 |
| 330.0 | 10.1 | 329.5 | 0.694 | 1.854 | 10.636 | 0.169 | 0.421 | 0.257 |
| 345.0 | 10.1 | 344.4 | 0.664 | 1.227 | 10.534 | 0.176 | 0.231 | 0.246 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.11: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.3 | 0.849 | 0.959 | 10.617 | 0.199 | 0.085 | 0.260 |
| 15.0 | 15.2 | 14.8 | 0.791 | 1.411 | 10.612 | 0.196 | 0.243 | 0.257 |
| 30.0 | 15.2 | 29.9 | 0.731 | 1.984 | 10.768 | 0.186 | 0.428 | 0.265 |
| 45.0 | 15.2 | 44.9 | 0.618 | 2.437 | 10.867 | 0.171 | 0.590 | 0.293 |
| 60.0 | 15.2 | 59.8 | 0.479 | 2.937 | 10.946 | 0.138 | 0.736 | 0.356 |
| 75.0 | 15.3 | 74.6 | 0.253 | 2.841 | 11.229 | 0.072 | 0.728 | 0.390 |
| 90.0 | 15.3 | 89.5 | 0.079 | 3.500 | 11.347 | 0.021 | 0.763 | 0.356 |
| 105.0 | 15.3 | 104.4 | 0.150 | 3.583 | 11.141 | 0.031 | 0.812 | 0.289 |
| 120.0 | 15.2 | 119.2 | 0.182 | 4.041 | 10.615 | 0.039 | 1.083 | 0.254 |
| 135.0 | 15.2 | 134.5 | 0.179 | 3.644 | 10.281 | 0.040 | 1.049 | 0.198 |
| 150.0 | 15.3 | 149.8 | 0.166 | 2.509 | 10.094 | 0.043 | 0.643 | 0.133 |
| 165.0 | 15.2 | 164.7 | 0.198 | 1.763 | 10.122 | 0.044 | 0.331 | 0.108 |
| 180.0 | 15.2 | 179.7 | 0.188 | 1.541 | 10.102 | 0.052 | 0.222 | 0.098 |
| 195.0 | 15.2 | 194.8 | 0.187 | 2.579 | 10.003 | 0.046 | 0.373 | 0.085 |
| 210.0 | 15.2 | 209.9 | 0.155 | 2.997 | 9.997 | 0.039 | 0.657 | 0.082 |
| 225.0 | 15.2 | 225.3 | 0.227 | 3.655 | 10.240 | 0.045 | 1.187 | 0.124 |
| 240.0 | 15.2 | 240.6 | 0.187 | 3.536 | 10.636 | 0.042 | 1.200 | 0.174 |
| 255.0 | 15.3 | 255.4 | 0.184 | 3.366 | 11.029 | 0.035 | 0.993 | 0.249 |
| 270.0 | 15.3 | 270.3 | 0.086 | 3.645 | 11.337 | 0.023 | 0.909 | 0.355 |
| 285.0 | 15.3 | 285.1 | 0.237 | 3.520 | 11.176 | 0.069 | 0.824 | 0.417 |
| 300.0 | 15.2 | 299.9 | 0.488 | 3.400 | 11.050 | 0.137 | 0.733 | 0.396 |
| 315.0 | 15.2 | 314.7 | 0.568 | 2.529 | 10.940 | 0.170 | 0.547 | 0.326 |
| 330.0 | 15.2 | 329.7 | 0.688 | 1.899 | 10.768 | 0.187 | 0.367 | 0.286 |
| 345.0 | 15.2 | 344.7 | 0.836 | 1.276 | 10.686 | 0.195 | 0.180 | 0.268 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.12: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.813 | 1.114 | 10.941 | 0.217 | 0.096 | 0.333 |
| 15.0 | 20.3 | 14.9 | 0.864 | 1.479 | 10.929 | 0.213 | 0.241 | 0.333 |
| 30.0 | 20.3 | 30.0 | 0.733 | 1.939 | 10.876 | 0.202 | 0.414 | 0.347 |
| 45.0 | 20.3 | 45.0 | 0.624 | 2.498 | 10.991 | 0.183 | 0.578 | 0.378 |
| 60.0 | 20.3 | 59.9 | 0.559 | 2.943 | 11.472 | 0.148 | 0.738 | 0.430 |
| 75.0 | 20.4 | 74.8 | 0.282 | 3.343 | 11.386 | 0.075 | 0.680 | 0.416 |
| 90.0 | 20.4 | 89.7 | 0.100 | 3.496 | 11.326 | 0.027 | 0.715 | 0.350 |
| 105.0 | 20.4 | 104.7 | 0.146 | 3.742 | 10.986 | 0.034 | 0.775 | 0.271 |
| 120.0 | 20.3 | 119.6 | 0.161 | 5.044 | 10.345 | 0.041 | 1.416 | 0.261 |
| 135.0 | 20.3 | 134.9 | 0.160 | 3.449 | 10.060 | 0.041 | 1.036 | 0.159 |
| 150.0 | 20.4 | 149.9 | 0.142 | 1.977 | 10.016 | 0.041 | 0.562 | 0.100 |
| 165.0 | 20.3 | 164.8 | 0.180 | 1.454 | 10.041 | 0.045 | 0.282 | 0.073 |
| 180.0 | 20.4 | 179.9 | 0.176 | 2.046 | 9.981 | 0.050 | 0.188 | 0.069 |
| 195.0 | 20.3 | 194.8 | 0.210 | 3.730 | 10.001 | 0.055 | 0.477 | 0.077 |
| 210.0 | 20.4 | 209.9 | 0.173 | 4.022 | 9.959 | 0.039 | 0.647 | 0.080 |
| 225.0 | 20.4 | 225.0 | 0.139 | 4.166 | 9.962 | 0.034 | 0.962 | 0.094 |
| 240.0 | 20.3 | 240.3 | 0.234 | 5.192 | 10.352 | 0.042 | 1.464 | 0.149 |
| 255.0 | 20.4 | 255.2 | 0.188 | 3.803 | 10.809 | 0.037 | 0.987 | 0.217 |
| 270.0 | 20.4 | 270.1 | 0.106 | 3.628 | 11.190 | 0.030 | 0.891 | 0.342 |
| 285.0 | 20.4 | 285.0 | 0.272 | 3.610 | 11.480 | 0.072 | 0.793 | 0.450 |
| 300.0 | 20.3 | 299.9 | 0.493 | 3.314 | 11.186 | 0.144 | 0.702 | 0.475 |
| 315.0 | 20.3 | 314.8 | 0.672 | 2.402 | 11.109 | 0.182 | 0.510 | 0.418 |
| 330.0 | 20.3 | 329.8 | 0.747 | 1.998 | 11.029 | 0.201 | 0.332 | 0.373 |
| 345.0 | 20.3 | 344.8 | 0.867 | 1.376 | 11.017 | 0.213 | 0.156 | 0.347 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.13: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.920 | 1.304 | 11.386 | 0.231 | 0.118 | 0.471 |
| 15.0 | 25.4 | 15.0 | 0.833 | 1.531 | 11.526 | 0.228 | 0.242 | 0.469 |
| 30.0 | 25.4 | 30.0 | 0.924 | 2.328 | 11.511 | 0.216 | 0.403 | 0.479 |
| 45.0 | 25.4 | 45.0 | 0.728 | 2.577 | 11.471 | 0.194 | 0.568 | 0.499 |
| 60.0 | 25.4 | 60.0 | 0.545 | 3.280 | 11.649 | 0.156 | 0.740 | 0.523 |
| 75.0 | 25.4 | 74.9 | 0.268 | 2.851 | 11.376 | 0.079 | 0.653 | 0.457 |
| 90.0 | 25.4 | 89.8 | 0.119 | 3.425 | 11.288 | 0.033 | 0.688 | 0.341 |
| 105.0 | 25.4 | 104.8 | 0.170 | 3.573 | 10.729 | 0.041 | 0.774 | 0.249 |
| 120.0 | 25.4 | 119.9 | 0.187 | 4.693 | 10.028 | 0.050 | 1.657 | 0.248 |
| 135.0 | 25.4 | 134.9 | 0.184 | 4.059 | 9.953 | 0.050 | 0.980 | 0.126 |
| 150.0 | 25.4 | 149.9 | 0.164 | 2.218 | 9.937 | 0.055 | 0.643 | 0.081 |
| 165.0 | 25.5 | 164.9 | 0.215 | 1.847 | 9.948 | 0.067 | 0.357 | 0.067 |
| 180.0 | 25.5 | 179.9 | 0.249 | 2.123 | 10.005 | 0.069 | 0.195 | 0.058 |
| 195.0 | 25.5 | 195.0 | 0.186 | 2.279 | 9.947 | 0.061 | 0.355 | 0.059 |
| 210.0 | 25.5 | 210.0 | 0.152 | 3.754 | 9.895 | 0.045 | 0.617 | 0.084 |
| 225.0 | 25.4 | 225.0 | 0.131 | 4.270 | 9.920 | 0.043 | 1.085 | 0.124 |
| 240.0 | 25.4 | 240.1 | 0.175 | 6.201 | 9.900 | 0.043 | 1.528 | 0.155 |
| 255.0 | 25.4 | 255.1 | 0.203 | 4.244 | 10.773 | 0.042 | 0.945 | 0.189 |
| 270.0 | 25.4 | 270.1 | 0.126 | 3.400 | 10.950 | 0.036 | 0.834 | 0.329 |
| 285.0 | 25.4 | 285.0 | 0.265 | 3.942 | 11.431 | 0.075 | 0.744 | 0.486 |
| 300.0 | 25.4 | 299.9 | 0.513 | 3.133 | 11.608 | 0.151 | 0.675 | 0.564 |
| 315.0 | 25.4 | 314.9 | 0.714 | 2.432 | 11.490 | 0.192 | 0.479 | 0.535 |
| 330.0 | 25.4 | 329.9 | 0.846 | 2.116 | 11.436 | 0.214 | 0.308 | 0.506 |
| 345.0 | 25.4 | 344.9 | 0.999 | 1.393 | 11.624 | 0.227 | 0.155 | 0.483 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.14: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.047 | 1.434 | 12.255 | 0.244 | 0.145 | 0.637 |
| 15.0 | 30.5 | 15.0 | 0.918 | 1.691 | 11.693 | 0.240 | 0.247 | 0.633 |
| 30.0 | 30.5 | 30.0 | 0.838 | 2.246 | 11.911 | 0.226 | 0.393 | 0.633 |
| 45.0 | 30.5 | 45.0 | 0.709 | 2.781 | 11.696 | 0.203 | 0.551 | 0.632 |
| 60.0 | 30.5 | 60.0 | 0.583 | 3.214 | 11.809 | 0.163 | 0.737 | 0.622 |
| 75.0 | 30.5 | 74.9 | 0.272 | 3.060 | 11.637 | 0.083 | 0.620 | 0.498 |
| 90.0 | 30.5 | 89.9 | 0.137 | 3.295 | 11.244 | 0.038 | 0.680 | 0.330 |
| 105.0 | 30.5 | 104.9 | 0.204 | 3.389 | 10.591 | 0.049 | 0.844 | 0.232 |
| 120.0 | 30.4 | 119.9 | 0.262 | 5.840 | 9.958 | 0.064 | 1.751 | 0.236 |
| 135.0 | 30.5 | 134.9 | 0.206 | 3.330 | 9.921 | 0.060 | 0.995 | 0.111 |
| 150.0 | 30.6 | 149.8 | 0.287 | 2.681 | 9.937 | 0.086 | 0.661 | 0.087 |
| 165.0 | 30.7 | 164.9 | 0.293 | 2.054 | 9.959 | 0.094 | 0.364 | 0.053 |
| 180.0 | 30.6 | 179.8 | 0.371 | 2.125 | 9.900 | 0.102 | 0.279 | 0.046 |
| 195.0 | 30.7 | 195.0 | 0.287 | 2.964 | 9.900 | 0.091 | 0.458 | 0.063 |
| 210.0 | 30.6 | 210.1 | 0.319 | 3.661 | 9.913 | 0.077 | 0.695 | 0.083 |
| 225.0 | 30.5 | 225.0 | 0.241 | 4.723 | 9.949 | 0.055 | 1.021 | 0.141 |
| 240.0 | 30.5 | 240.0 | 0.201 | 5.524 | 9.888 | 0.048 | 1.434 | 0.148 |
| 255.0 | 30.5 | 255.1 | 0.184 | 3.982 | 10.530 | 0.049 | 0.891 | 0.164 |
| 270.0 | 30.5 | 270.0 | 0.154 | 3.319 | 10.975 | 0.042 | 0.765 | 0.316 |
| 285.0 | 30.5 | 285.0 | 0.267 | 4.097 | 11.670 | 0.079 | 0.689 | 0.528 |
| 300.0 | 30.5 | 299.9 | 0.516 | 3.629 | 11.995 | 0.157 | 0.650 | 0.659 |
| 315.0 | 30.5 | 314.9 | 0.757 | 2.805 | 11.833 | 0.199 | 0.463 | 0.663 |
| 330.0 | 30.5 | 329.9 | 0.883 | 2.178 | 11.935 | 0.225 | 0.303 | 0.656 |
| 345.0 | 30.5 | 344.9 | 0.977 | 1.612 | 11.991 | 0.239 | 0.177 | 0.644 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.15: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -21.2 | 1.342 | 3.236 | 10.941 | 0.282 | 0.612 | 0.399 |
| 15.0 | -0.2 | -12.9 | 1.245 | 2.392 | 10.761 | 0.280 | 0.429 | 0.373 |
| 30.0 | -0.5 | -0.8 | 1.208 | 2.082 | 10.782 | 0.276 | 0.347 | 0.348 |
| 45.0 | -0.9 | 12.3 | 1.293 | 3.042 | 10.749 | 0.274 | 0.621 | 0.339 |
| 60.0 | -1.1 | 23.7 | 1.122 | 3.907 | 10.986 | 0.273 | 0.900 | 0.356 |
| 75.0 | -1.8 | 34.8 | 1.739 | 7.114 | 12.680 | 0.265 | 1.273 | 0.440 |
| 90.0 | -2.2 | -14.4 | 1.282 | 10.949 | 12.748 | 0.261 | 1.550 | 0.491 |
| 105.0 | -1.6 | -3.1 | 1.254 | 10.846 | 13.746 | 0.263 | 1.484 | 0.489 |
| 120.0 | -1.2 | 13.1 | 1.061 | 8.374 | 13.420 | 0.237 | 1.445 | 0.531 |
| 135.0 | -3.2 | 107.2 | 1.834 | 12.035 | 13.846 | 0.224 | 1.659 | 0.686 |
| 150.0 | -4.1 | 109.6 | 1.141 | 7.956 | 12.973 | 0.228 | 1.596 | 0.652 |
| 165.0 | -3.7 | 111.5 | 2.209 | 9.550 | 13.358 | 0.234 | 1.569 | 0.644 |
| 180.0 | -0.8 | 153.3 | 0.852 | 7.153 | 12.178 | 0.216 | 0.704 | 0.345 |
| 195.0 | -0.3 | 17.5 | 1.262 | 6.173 | 12.333 | 0.277 | 0.880 | 0.448 |
| 210.0 | -0.3 | 387.8 | 1.238 | 4.979 | 12.019 | 0.280 | 0.990 | 0.482 |
| 225.0 | -0.3 | 393.4 | 1.179 | 5.380 | 12.237 | 0.281 | 1.111 | 0.507 |
| 240.0 | -0.1 | 392.3 | 1.146 | 5.905 | 12.554 | 0.279 | 1.241 | 0.552 |
| 255.0 | 0.5 | 310.5 | 1.272 | 6.605 | 13.024 | 0.266 | 1.458 | 0.651 |
| 270.0 | -0.1 | 314.6 | 2.034 | 7.196 | 12.878 | 0.272 | 1.433 | 0.644 |
| 285.0 | -0.2 | 305.4 | 1.234 | 4.950 | 12.126 | 0.281 | 1.270 | 0.580 |
| 300.0 | -0.3 | 310.6 | 1.080 | 6.367 | 12.297 | 0.283 | 1.171 | 0.539 |
| 315.0 | -0.2 | 316.2 | 1.187 | 4.588 | 11.736 | 0.288 | 1.101 | 0.502 |
| 330.0 | -0.1 | 323.1 | 1.309 | 4.923 | 11.365 | 0.287 | 0.922 | 0.464 |
| 345.0 | -0.1 | 330.8 | 1.336 | 4.404 | 11.090 | 0.285 | 0.770 | 0.431 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.16: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.0 | -12.7 | 1.406 | 2.544 | 10.824 | 0.316 | 0.407 | 0.404 |
| 15.0 | 3.9 | -1.6 | 1.314 | 2.244 | 10.910 | 0.312 | 0.350 | 0.389 |
| 30.0 | 3.9 | 10.9 | 1.459 | 2.196 | 10.791 | 0.311 | 0.387 | 0.385 |
| 45.0 | 3.8 | 22.6 | 1.483 | 2.857 | 10.813 | 0.313 | 0.554 | 0.392 |
| 60.0 | 3.8 | 32.4 | 1.352 | 3.526 | 10.956 | 0.312 | 0.770 | 0.415 |
| 75.0 | 3.7 | 39.8 | 1.401 | 4.895 | 11.384 | 0.309 | 0.932 | 0.439 |
| 90.0 | 3.6 | 42.9 | 1.290 | 6.936 | 12.960 | 0.306 | 1.016 | 0.464 |
| 105.0 | 3.6 | 45.4 | 1.246 | 9.885 | 13.902 | 0.303 | 1.092 | 0.491 |
| 120.0 | 3.7 | 45.3 | 1.379 | 11.747 | 12.183 | 0.307 | 1.095 | 0.506 |
| 135.0 | 3.7 | 42.8 | 1.363 | 4.738 | 11.639 | 0.306 | 0.964 | 0.478 |
| 150.0 | 3.7 | 44.0 | 1.366 | 5.140 | 11.884 | 0.308 | 0.929 | 0.488 |
| 165.0 | 3.8 | 51.5 | 1.205 | 5.416 | 11.761 | 0.306 | 0.998 | 0.488 |
| 180.0 | 4.7 | 178.8 | 0.613 | 2.165 | 10.743 | 0.153 | 0.457 | 0.181 |
| 195.0 | 4.6 | 196.7 | 0.603 | 2.250 | 10.906 | 0.157 | 0.568 | 0.212 |
| 210.0 | 4.1 | 373.7 | 1.364 | 4.992 | 12.851 | 0.314 | 0.821 | 0.463 |
| 225.0 | 4.4 | 300.1 | 1.063 | 6.458 | 13.244 | 0.287 | 1.262 | 0.605 |
| 240.0 | 4.5 | 289.0 | 1.079 | 6.950 | 13.834 | 0.260 | 1.461 | 0.759 |
| 255.0 | 4.4 | 290.4 | 1.163 | 6.874 | 13.686 | 0.270 | 1.482 | 0.767 |
| 270.0 | 4.3 | 294.0 | 2.269 | 6.866 | 13.443 | 0.286 | 1.396 | 0.719 |
| 285.0 | 4.4 | 296.8 | 1.338 | 6.801 | 13.869 | 0.293 | 1.338 | 0.676 |
| 300.0 | 4.6 | 302.9 | 1.334 | 4.751 | 12.082 | 0.308 | 1.200 | 0.608 |
| 315.0 | 4.6 | 314.4 | 1.301 | 4.438 | 11.294 | 0.321 | 0.960 | 0.522 |
| 330.0 | 4.5 | 326.6 | 1.416 | 4.689 | 11.362 | 0.324 | 0.714 | 0.465 |
| 345.0 | 4.3 | 338.2 | 1.377 | 2.739 | 11.062 | 0.320 | 0.526 | 0.426 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.17: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.7 | -1.2 | 1.475 | 1.843 | 10.969 | 0.348 | 0.262 | 0.437 |
| 15.0 | 9.7 | 13.7 | 1.505 | 2.219 | 10.888 | 0.349 | 0.341 | 0.435 |
| 30.0 | 9.7 | 28.7 | 1.362 | 2.727 | 11.066 | 0.352 | 0.543 | 0.447 |
| 45.0 | 9.7 | 43.7 | 1.465 | 3.945 | 11.278 | 0.347 | 0.817 | 0.482 |
| 60.0 | 9.7 | 58.1 | 1.173 | 5.667 | 11.835 | 0.322 | 1.113 | 0.571 |
| 75.0 | 9.7 | 71.5 | 1.182 | 7.704 | 13.285 | 0.269 | 1.358 | 0.771 |
| 90.0 | 8.7 | 77.7 | 1.419 | 8.369 | 14.035 | 0.213 | 1.512 | 0.881 |
| 105.0 | 8.6 | 81.7 | 0.921 | 9.994 | 13.980 | 0.168 | 1.591 | 0.917 |
| 120.0 | 8.5 | 85.6 | 0.852 | 9.311 | 14.189 | 0.140 | 1.645 | 0.918 |
| 135.0 | 8.5 | 100.0 | 0.954 | 9.561 | 13.867 | 0.129 | 1.605 | 0.770 |
| 150.0 | 9.3 | 145.5 | 0.472 | 3.993 | 10.574 | 0.118 | 1.352 | 0.245 |
| 165.0 | 9.7 | 162.2 | 0.347 | 4.204 | 10.320 | 0.110 | 1.265 | 0.213 |
| 180.0 | 9.9 | 178.2 | 0.368 | 4.073 | 10.133 | 0.106 | 0.980 | 0.155 |
| 195.0 | 10.0 | 194.6 | 0.372 | 3.086 | 10.388 | 0.110 | 0.821 | 0.110 |
| 210.0 | 9.8 | 211.6 | 0.430 | 3.476 | 10.544 | 0.118 | 1.188 | 0.168 |
| 225.0 | 8.9 | 239.9 | 0.914 | 7.801 | 13.370 | 0.142 | 1.478 | 0.463 |
| 240.0 | 8.5 | 268.0 | 1.391 | 12.094 | 13.851 | 0.146 | 1.745 | 0.892 |
| 255.0 | 8.5 | 273.6 | 1.327 | 8.569 | 13.779 | 0.137 | 1.663 | 0.960 |
| 270.0 | 9.0 | 279.6 | 1.989 | 7.940 | 13.905 | 0.184 | 1.556 | 1.014 |
| 285.0 | 9.9 | 287.8 | 1.644 | 5.999 | 13.699 | 0.272 | 1.386 | 0.900 |
| 300.0 | 9.9 | 300.3 | 1.167 | 4.285 | 11.831 | 0.325 | 1.126 | 0.679 |
| 315.0 | 9.8 | 314.3 | 1.540 | 3.807 | 11.371 | 0.353 | 0.863 | 0.542 |
| 330.0 | 9.7 | 329.0 | 1.575 | 3.135 | 11.157 | 0.357 | 0.578 | 0.481 |
| 345.0 | 9.7 | 343.9 | 1.465 | 2.422 | 10.993 | 0.353 | 0.358 | 0.448 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.18: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.452 | 1.743 | 11.317 | 0.380 | 0.242 | 0.461 |
| 15.0 | 15.0 | 14.6 | 1.412 | 2.062 | 11.241 | 0.381 | 0.341 | 0.463 |
| 30.0 | 15.0 | 29.6 | 1.422 | 2.729 | 11.224 | 0.385 | 0.532 | 0.492 |
| 45.0 | 15.0 | 44.7 | 1.389 | 3.777 | 11.344 | 0.375 | 0.785 | 0.555 |
| 60.0 | 15.0 | 59.4 | 1.425 | 5.922 | 12.098 | 0.341 | 1.057 | 0.698 |
| 75.0 | 15.1 | 73.6 | 1.132 | 6.566 | 13.615 | 0.266 | 1.249 | 0.924 |
| 90.0 | 14.8 | 87.3 | 0.910 | 8.780 | 14.436 | 0.094 | 1.409 | 0.991 |
| 105.0 | 14.6 | 101.8 | 0.661 | 10.089 | 14.068 | 0.111 | 1.603 | 0.699 |
| 120.0 | 14.5 | 115.8 | 0.701 | 10.545 | 14.087 | 0.095 | 1.762 | 0.531 |
| 135.0 | 14.9 | 133.2 | 0.384 | 5.192 | 10.870 | 0.079 | 1.775 | 0.348 |
| 150.0 | 15.0 | 149.1 | 0.359 | 4.211 | 10.381 | 0.090 | 1.276 | 0.238 |
| 165.0 | 15.0 | 164.2 | 0.386 | 3.527 | 10.232 | 0.089 | 0.732 | 0.150 |
| 180.0 | 15.1 | 179.2 | 0.483 | 3.340 | 10.178 | 0.095 | 0.578 | 0.128 |
| 195.0 | 15.0 | 194.5 | 0.301 | 4.472 | 9.973 | 0.098 | 0.843 | 0.105 |
| 210.0 | 15.0 | 209.7 | 0.288 | 4.401 | 9.996 | 0.082 | 1.217 | 0.119 |
| 225.0 | 15.0 | 226.9 | 0.679 | 6.949 | 12.179 | 0.086 | 1.892 | 0.218 |
| 240.0 | 14.4 | 244.9 | 0.805 | 9.669 | 12.811 | 0.114 | 1.883 | 0.463 |
| 255.0 | 14.4 | 259.4 | 1.308 | 9.846 | 14.401 | 0.128 | 1.801 | 0.707 |
| 270.0 | 14.7 | 273.0 | 0.616 | 8.234 | 14.366 | 0.087 | 1.659 | 1.057 |
| 285.0 | 15.2 | 286.3 | 1.073 | 6.150 | 13.399 | 0.264 | 1.381 | 1.046 |
| 300.0 | 15.1 | 300.0 | 1.296 | 5.657 | 12.176 | 0.340 | 1.092 | 0.813 |
| 315.0 | 15.0 | 314.5 | 1.462 | 3.333 | 11.641 | 0.376 | 0.777 | 0.633 |
| 330.0 | 15.0 | 329.5 | 1.469 | 2.776 | 11.485 | 0.387 | 0.515 | 0.539 |
| 345.0 | 15.0 | 344.5 | 1.519 | 1.941 | 11.519 | 0.383 | 0.311 | 0.485 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.19: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.400 | 1.898 | 12.086 | 0.407 | 0.253 | 0.638 |
| 15.0 | 20.2 | 14.8 | 1.472 | 2.407 | 11.833 | 0.409 | 0.347 | 0.639 |
| 30.0 | 20.2 | 29.8 | 1.524 | 3.056 | 12.086 | 0.412 | 0.535 | 0.681 |
| 45.0 | 20.2 | 44.9 | 1.507 | 4.453 | 12.059 | 0.399 | 0.764 | 0.753 |
| 60.0 | 20.2 | 59.7 | 1.235 | 5.809 | 12.207 | 0.357 | 1.016 | 0.881 |
| 75.0 | 20.3 | 74.2 | 1.062 | 6.639 | 13.574 | 0.266 | 1.175 | 1.052 |
| 90.0 | 20.1 | 88.5 | 0.826 | 8.455 | 14.457 | 0.078 | 1.348 | 0.987 |
| 105.0 | 20.1 | 103.6 | 0.572 | 10.490 | 13.063 | 0.094 | 1.649 | 0.624 |
| 120.0 | 20.1 | 118.8 | 0.311 | 6.518 | 11.077 | 0.068 | 2.181 | 0.495 |
| 135.0 | 20.1 | 134.5 | 0.307 | 5.873 | 10.520 | 0.081 | 1.896 | 0.301 |
| 150.0 | 20.2 | 149.6 | 0.694 | 3.933 | 10.300 | 0.110 | 1.169 | 0.170 |
| 165.0 | 20.3 | 164.2 | 0.670 | 3.701 | 10.072 | 0.115 | 0.681 | 0.134 |
| 180.0 | 20.6 | 179.6 | 0.706 | 3.777 | 9.975 | 0.105 | 0.516 | 0.101 |
| 195.0 | 20.4 | 194.5 | 0.748 | 4.642 | 9.937 | 0.101 | 0.919 | 0.180 |
| 210.0 | 20.2 | 210.0 | 0.618 | 6.272 | 9.956 | 0.095 | 1.407 | 0.235 |
| 225.0 | 20.1 | 225.4 | 0.342 | 5.915 | 10.593 | 0.071 | 1.947 | 0.254 |
| 240.0 | 20.1 | 241.3 | 0.368 | 6.735 | 11.415 | 0.077 | 2.385 | 0.303 |
| 255.0 | 19.9 | 257.2 | 0.864 | 15.006 | 14.088 | 0.108 | 1.949 | 0.611 |
| 270.0 | 20.0 | 271.7 | 1.329 | 9.261 | 14.094 | 0.084 | 1.732 | 1.051 |
| 285.0 | 20.3 | 285.8 | 1.145 | 6.371 | 13.730 | 0.260 | 1.418 | 1.167 |
| 300.0 | 20.3 | 300.0 | 1.258 | 5.176 | 12.552 | 0.352 | 1.082 | 0.996 |
| 315.0 | 20.2 | 314.8 | 1.435 | 2.950 | 12.405 | 0.396 | 0.756 | 0.839 |
| 330.0 | 20.2 | 329.8 | 1.503 | 2.427 | 12.129 | 0.411 | 0.486 | 0.741 |
| 345.0 | 20.2 | 344.8 | 1.499 | 1.738 | 12.079 | 0.410 | 0.303 | 0.666 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.20: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 1.495 | 2.297 | 12.695 | 0.427 | 0.283 | 0.913 |
| 15.0 | 25.4 | 14.9 | 1.512 | 2.546 | 12.701 | 0.428 | 0.359 | 0.918 |
| 30.0 | 25.4 | 29.9 | 1.461 | 3.706 | 12.605 | 0.431 | 0.539 | 0.958 |
| 45.0 | 25.3 | 44.9 | 1.523 | 4.639 | 12.731 | 0.417 | 0.757 | 1.007 |
| 60.0 | 25.3 | 59.8 | 1.262 | 5.345 | 12.881 | 0.369 | 0.993 | 1.082 |
| 75.0 | 25.3 | 74.4 | 1.150 | 8.308 | 14.319 | 0.270 | 1.146 | 1.180 |
| 90.0 | 25.2 | 89.0 | 1.220 | 8.467 | 14.496 | 0.078 | 1.326 | 0.980 |
| 105.0 | 25.2 | 104.3 | 0.597 | 11.091 | 12.597 | 0.091 | 2.066 | 0.595 |
| 120.0 | 25.1 | 119.3 | 0.426 | 7.592 | 11.844 | 0.087 | 2.641 | 0.504 |
| 135.0 | 25.1 | 134.7 | 0.777 | 5.528 | 10.329 | 0.106 | 1.869 | 0.255 |
| 150.0 | 25.3 | 149.6 | 0.924 | 4.082 | 10.062 | 0.120 | 1.023 | 0.144 |
| 165.0 | 25.7 | 164.6 | 0.783 | 3.600 | 9.989 | 0.115 | 0.548 | 0.100 |
| 180.0 | 25.5 | 179.7 | 0.821 | 4.152 | 9.976 | 0.119 | 0.653 | 0.139 |
| 195.0 | 25.7 | 195.1 | 0.445 | 4.073 | 9.920 | 0.108 | 0.690 | 0.119 |
| 210.0 | 25.4 | 210.2 | 0.780 | 4.658 | 9.919 | 0.112 | 1.119 | 0.177 |
| 225.0 | 25.0 | 225.8 | 0.780 | 7.025 | 11.027 | 0.114 | 2.160 | 0.366 |
| 240.0 | 25.2 | 240.7 | 0.382 | 7.493 | 10.618 | 0.080 | 2.948 | 0.399 |
| 255.0 | 25.2 | 256.0 | 0.494 | 10.177 | 13.202 | 0.097 | 2.115 | 0.493 |
| 270.0 | 25.2 | 271.1 | 0.962 | 9.476 | 13.918 | 0.079 | 1.781 | 1.026 |
| 285.0 | 25.4 | 285.6 | 1.154 | 7.928 | 14.465 | 0.258 | 1.507 | 1.281 |
| 300.0 | 25.4 | 300.1 | 1.219 | 4.505 | 13.160 | 0.358 | 1.116 | 1.191 |
| 315.0 | 25.4 | 314.9 | 1.390 | 3.504 | 12.974 | 0.410 | 0.791 | 1.094 |
| 330.0 | 25.4 | 329.9 | 1.521 | 2.252 | 12.980 | 0.427 | 0.515 | 1.014 |
| 345.0 | 25.4 | 344.9 | 1.371 | 1.977 | 12.856 | 0.426 | 0.337 | 0.944 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.21: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.327 | 2.287 | 13.254 | 0.434 | 0.336 | 1.195 |
| 15.0 | 30.5 | 14.9 | 1.439 | 2.997 | 13.383 | 0.438 | 0.386 | 1.208 |
| 30.0 | 30.5 | 29.9 | 1.420 | 4.780 | 13.168 | 0.443 | 0.557 | 1.248 |
| 45.0 | 30.5 | 44.9 | 1.430 | 5.633 | 13.349 | 0.431 | 0.770 | 1.278 |
| 60.0 | 30.4 | 59.8 | 1.446 | 5.910 | 13.379 | 0.381 | 0.991 | 1.293 |
| 75.0 | 30.4 | 74.5 | 0.958 | 7.923 | 14.385 | 0.270 | 1.123 | 1.286 |
| 90.0 | 30.4 | 89.3 | 0.974 | 9.280 | 14.366 | 0.076 | 1.367 | 0.969 |
| 105.0 | 30.3 | 104.5 | 0.525 | 8.189 | 11.858 | 0.091 | 2.323 | 0.551 |
| 120.0 | 30.1 | 119.4 | 0.529 | 7.445 | 11.060 | 0.115 | 2.695 | 0.456 |
| 135.0 | 30.2 | 134.6 | 0.579 | 5.535 | 10.044 | 0.125 | 1.744 | 0.246 |
| 150.0 | 31.0 | 149.1 | 0.658 | 5.383 | 9.995 | 0.133 | 0.987 | 0.188 |
| 165.0 | 30.1 | 164.8 | 1.108 | 4.316 | 10.166 | 0.148 | 0.764 | 0.166 |
| 180.0 | 30.6 | 179.4 | 1.143 | 4.624 | 10.147 | 0.142 | 0.906 | 0.222 |
| 195.0 | 30.2 | 194.5 | 1.184 | 5.409 | 10.098 | 0.154 | 1.053 | 0.240 |
| 210.0 | 31.1 | 210.4 | 1.099 | 6.084 | 10.084 | 0.133 | 1.250 | 0.190 |
| 225.0 | 30.4 | 225.3 | 0.462 | 6.354 | 9.982 | 0.120 | 1.653 | 0.259 |
| 240.0 | 29.9 | 241.2 | 0.706 | 11.320 | 14.192 | 0.135 | 3.210 | 0.570 |
| 255.0 | 30.3 | 255.5 | 0.443 | 9.834 | 12.828 | 0.098 | 2.511 | 0.469 |
| 270.0 | 30.4 | 270.7 | 0.760 | 9.266 | 13.957 | 0.081 | 1.757 | 0.998 |
| 285.0 | 30.5 | 285.4 | 1.017 | 7.088 | 14.590 | 0.256 | 1.630 | 1.384 |
| 300.0 | 30.5 | 300.1 | 1.266 | 4.925 | 13.593 | 0.366 | 1.217 | 1.393 |
| 315.0 | 30.5 | 315.1 | 1.464 | 3.459 | 13.876 | 0.418 | 0.886 | 1.357 |
| 330.0 | 30.5 | 330.1 | 1.454 | 2.620 | 13.670 | 0.437 | 0.578 | 1.302 |
| 345.0 | 30.5 | 345.0 | 1.382 | 2.180 | 13.570 | 0.438 | 0.400 | 1.226 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.22: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -18.5 | 0.871 | 3.343 | 10.683 | 0.201 | 0.734 | 0.317 |
| 15.0 | -0.5 | -12.0 | 1.091 | 2.965 | 10.811 | 0.202 | 0.650 | 0.308 |
| 30.0 | -0.8 | -3.6 | 1.015 | 3.139 | 10.657 | 0.201 | 0.690 | 0.304 |
| 45.0 | -1.2 | -58.6 | 0.797 | 4.871 | 11.481 | 0.149 | 1.350 | 0.416 |
| 60.0 | -0.3 | 32.5 | 0.717 | 4.607 | 11.150 | 0.190 | 1.097 | 0.343 |
| 75.0 | -0.1 | 49.5 | 0.606 | 5.015 | 11.704 | 0.169 | 1.295 | 0.387 |
| 90.0 | 0.2 | 65.1 | 0.527 | 4.855 | 11.799 | 0.129 | 1.361 | 0.435 |
| 105.0 | -0.0 | 88.9 | 0.306 | 5.254 | 11.822 | 0.034 | 1.390 | 0.500 |
| 120.0 | -0.7 | 99.4 | 0.448 | 5.172 | 11.602 | 0.061 | 1.398 | 0.493 |
| 135.0 | -1.3 | 106.4 | 0.481 | 5.640 | 12.031 | 0.090 | 1.402 | 0.480 |
| 150.0 | -1.8 | 109.3 | 0.565 | 6.295 | 11.634 | 0.106 | 1.387 | 0.467 |
| 165.0 | -1.4 | 56.9 | 0.863 | 4.175 | 11.548 | 0.154 | 1.169 | 0.397 |
| 180.0 | -0.9 | 37.8 | 0.999 | 4.157 | 11.063 | 0.190 | 0.891 | 0.328 |
| 195.0 | -0.1 | 374.4 | 0.738 | 3.768 | 11.028 | 0.191 | 0.940 | 0.340 |
| 210.0 | 0.1 | 378.5 | 0.887 | 4.282 | 11.253 | 0.179 | 1.079 | 0.373 |
| 225.0 | 0.3 | 365.6 | 0.744 | 4.555 | 11.363 | 0.162 | 1.266 | 0.419 |
| 240.0 | 0.6 | 277.2 | 0.444 | 5.643 | 11.807 | 0.062 | 1.363 | 0.530 |
| 255.0 | 0.5 | 285.1 | 0.404 | 5.368 | 12.062 | 0.093 | 1.345 | 0.512 |
| 270.0 | 0.5 | 293.6 | 0.500 | 5.255 | 12.096 | 0.128 | 1.311 | 0.484 |
| 285.0 | 0.4 | 300.7 | 0.661 | 4.938 | 11.725 | 0.152 | 1.262 | 0.450 |
| 300.0 | 0.3 | 309.0 | 0.791 | 4.576 | 11.456 | 0.171 | 1.230 | 0.417 |
| 315.0 | 0.2 | 316.0 | 0.791 | 4.313 | 11.431 | 0.182 | 1.139 | 0.389 |
| 330.0 | 0.1 | 324.5 | 0.803 | 4.432 | 11.021 | 0.191 | 1.057 | 0.361 |
| 345.0 | 0.0 | 332.4 | 0.847 | 3.818 | 10.853 | 0.196 | 0.891 | 0.338 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.23: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.2 | -12.0 | 1.041 | 3.282 | 10.734 | 0.235 | 0.631 | 0.330 |
| 15.0 | 4.0 | -7.0 | 0.967 | 3.143 | 10.737 | 0.236 | 0.605 | 0.323 |
| 30.0 | 3.9 | 0.5 | 1.021 | 2.842 | 10.778 | 0.236 | 0.620 | 0.320 |
| 45.0 | 3.9 | 11.1 | 1.035 | 3.150 | 10.812 | 0.231 | 0.712 | 0.324 |
| 60.0 | 4.0 | 29.4 | 0.961 | 4.329 | 11.211 | 0.219 | 1.024 | 0.363 |
| 75.0 | 4.1 | 49.3 | 0.757 | 5.063 | 11.615 | 0.192 | 1.237 | 0.411 |
| 90.0 | 4.2 | 61.7 | 0.613 | 5.415 | 11.786 | 0.155 | 1.349 | 0.460 |
| 105.0 | 4.3 | 78.3 | 0.374 | 5.010 | 12.122 | 0.076 | 1.348 | 0.516 |
| 120.0 | 4.1 | 92.0 | 0.425 | 5.895 | 12.103 | 0.036 | 1.336 | 0.519 |
| 135.0 | 4.0 | 100.0 | 0.456 | 5.642 | 12.195 | 0.053 | 1.338 | 0.496 |
| 150.0 | 3.9 | 53.6 | 0.865 | 4.360 | 11.795 | 0.185 | 1.217 | 0.411 |
| 165.0 | 4.0 | 54.1 | 0.834 | 3.899 | 11.534 | 0.193 | 1.163 | 0.399 |
| 180.0 | 4.0 | 63.4 | 0.722 | 4.364 | 11.608 | 0.191 | 1.186 | 0.394 |
| 195.0 | 4.7 | 195.6 | 0.551 | 2.786 | 10.849 | 0.129 | 0.667 | 0.215 |
| 210.0 | 4.4 | 219.3 | 0.609 | 3.562 | 11.008 | 0.122 | 0.943 | 0.265 |
| 225.0 | 4.3 | 251.8 | 0.474 | 6.052 | 11.391 | 0.084 | 1.288 | 0.435 |
| 240.0 | 4.3 | 260.6 | 0.437 | 5.132 | 11.562 | 0.060 | 1.337 | 0.492 |
| 255.0 | 4.4 | 270.2 | 0.326 | 5.099 | 11.692 | 0.038 | 1.360 | 0.541 |
| 270.0 | 4.6 | 280.1 | 0.358 | 6.521 | 12.067 | 0.066 | 1.342 | 0.557 |
| 285.0 | 4.8 | 290.4 | 0.613 | 5.255 | 12.135 | 0.126 | 1.298 | 0.523 |
| 300.0 | 4.9 | 302.4 | 0.668 | 4.111 | 11.359 | 0.179 | 1.192 | 0.456 |
| 315.0 | 4.8 | 314.6 | 0.905 | 3.710 | 11.182 | 0.208 | 1.033 | 0.399 |
| 330.0 | 4.8 | 327.8 | 0.819 | 3.956 | 10.918 | 0.223 | 0.861 | 0.366 |
| 345.0 | 4.5 | 339.9 | 0.994 | 3.044 | 10.772 | 0.232 | 0.692 | 0.344 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.24: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.8 | -1.3 | 1.152 | 1.881 | 10.863 | 0.266 | 0.249 | 0.354 |
| 15.0 | 9.8 | 13.7 | 1.349 | 2.183 | 10.920 | 0.263 | 0.443 | 0.355 |
| 30.0 | 9.8 | 28.7 | 1.232 | 3.169 | 10.970 | 0.251 | 0.708 | 0.365 |
| 45.0 | 9.9 | 43.8 | 0.887 | 3.633 | 11.064 | 0.230 | 0.926 | 0.393 |
| 60.0 | 9.9 | 58.5 | 0.652 | 4.734 | 11.427 | 0.191 | 1.107 | 0.462 |
| 75.0 | 10.0 | 73.1 | 0.546 | 4.870 | 12.490 | 0.111 | 1.137 | 0.542 |
| 90.0 | 9.9 | 87.8 | 0.139 | 4.976 | 12.248 | 0.026 | 1.171 | 0.553 |
| 105.0 | 9.9 | 102.5 | 0.261 | 5.333 | 12.063 | 0.047 | 1.173 | 0.485 |
| 120.0 | 9.5 | 116.3 | 0.361 | 5.106 | 11.543 | 0.072 | 1.168 | 0.412 |
| 135.0 | 9.5 | 131.2 | 0.446 | 4.490 | 11.446 | 0.082 | 1.054 | 0.332 |
| 150.0 | 9.6 | 147.0 | 0.401 | 4.044 | 10.691 | 0.088 | 0.999 | 0.269 |
| 165.0 | 9.7 | 162.7 | 0.489 | 3.466 | 10.598 | 0.092 | 0.916 | 0.226 |
| 180.0 | 9.8 | 178.5 | 0.488 | 3.155 | 10.497 | 0.094 | 0.738 | 0.188 |
| 195.0 | 9.9 | 194.5 | 0.530 | 2.836 | 10.712 | 0.094 | 0.658 | 0.152 |
| 210.0 | 9.9 | 210.9 | 0.417 | 2.984 | 10.560 | 0.092 | 0.969 | 0.176 |
| 225.0 | 9.7 | 227.5 | 0.475 | 3.714 | 11.066 | 0.088 | 1.210 | 0.237 |
| 240.0 | 9.6 | 243.5 | 0.434 | 4.488 | 11.475 | 0.080 | 1.361 | 0.335 |
| 255.0 | 9.8 | 257.7 | 0.338 | 5.563 | 11.613 | 0.057 | 1.384 | 0.440 |
| 270.0 | 10.0 | 272.0 | 0.162 | 5.625 | 12.192 | 0.028 | 1.368 | 0.555 |
| 285.0 | 10.1 | 286.1 | 0.493 | 5.260 | 12.342 | 0.105 | 1.261 | 0.575 |
| 300.0 | 10.1 | 300.2 | 0.696 | 4.408 | 11.905 | 0.188 | 1.120 | 0.506 |
| 315.0 | 10.0 | 314.4 | 0.820 | 3.644 | 11.111 | 0.229 | 0.892 | 0.420 |
| 330.0 | 9.9 | 329.0 | 1.010 | 2.877 | 11.163 | 0.250 | 0.643 | 0.384 |
| 345.0 | 9.9 | 343.8 | 1.090 | 2.382 | 10.851 | 0.262 | 0.375 | 0.366 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.25: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.223 | 1.577 | 10.964 | 0.295 | 0.201 | 0.391 |
| 15.0 | 15.0 | 14.6 | 1.154 | 2.251 | 10.953 | 0.290 | 0.403 | 0.384 |
| 30.0 | 15.0 | 29.7 | 1.145 | 2.818 | 11.071 | 0.275 | 0.648 | 0.396 |
| 45.0 | 15.1 | 44.7 | 0.915 | 3.623 | 11.373 | 0.250 | 0.858 | 0.434 |
| 60.0 | 15.1 | 59.5 | 0.728 | 4.437 | 11.677 | 0.204 | 1.049 | 0.522 |
| 75.0 | 15.2 | 74.2 | 0.449 | 4.416 | 12.103 | 0.111 | 1.039 | 0.581 |
| 90.0 | 15.2 | 89.0 | 0.125 | 4.866 | 12.191 | 0.033 | 1.073 | 0.551 |
| 105.0 | 15.2 | 104.0 | 0.298 | 5.477 | 12.100 | 0.048 | 1.125 | 0.459 |
| 120.0 | 15.0 | 118.3 | 0.288 | 5.612 | 11.288 | 0.062 | 1.371 | 0.418 |
| 135.0 | 15.0 | 133.7 | 0.316 | 4.581 | 10.849 | 0.068 | 1.437 | 0.343 |
| 150.0 | 15.3 | 149.5 | 0.263 | 3.133 | 10.345 | 0.064 | 0.882 | 0.216 |
| 165.0 | 15.2 | 164.4 | 0.340 | 2.412 | 10.321 | 0.066 | 0.512 | 0.177 |
| 180.0 | 15.2 | 179.3 | 0.323 | 2.783 | 10.168 | 0.077 | 0.463 | 0.163 |
| 195.0 | 15.1 | 194.5 | 0.341 | 3.855 | 10.079 | 0.066 | 0.595 | 0.136 |
| 210.0 | 15.1 | 209.9 | 0.437 | 4.191 | 10.414 | 0.070 | 1.057 | 0.131 |
| 225.0 | 15.0 | 225.9 | 0.425 | 4.224 | 11.007 | 0.070 | 1.526 | 0.186 |
| 240.0 | 15.0 | 241.5 | 0.334 | 4.941 | 11.339 | 0.067 | 1.646 | 0.273 |
| 255.0 | 15.1 | 256.2 | 0.325 | 4.996 | 12.070 | 0.057 | 1.482 | 0.380 |
| 270.0 | 15.2 | 270.9 | 0.161 | 5.391 | 11.904 | 0.037 | 1.404 | 0.536 |
| 285.0 | 15.2 | 285.4 | 0.413 | 5.375 | 11.974 | 0.105 | 1.269 | 0.616 |
| 300.0 | 15.2 | 299.9 | 0.707 | 4.841 | 11.769 | 0.201 | 1.070 | 0.588 |
| 315.0 | 15.1 | 314.5 | 0.900 | 3.321 | 11.466 | 0.249 | 0.782 | 0.488 |
| 330.0 | 15.0 | 329.4 | 1.068 | 2.604 | 11.089 | 0.274 | 0.534 | 0.432 |
| 345.0 | 15.0 | 344.4 | 1.279 | 2.008 | 10.984 | 0.289 | 0.295 | 0.403 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.26: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.282 | 1.916 | 11.417 | 0.317 | 0.221 | 0.499 |
| 15.0 | 20.2 | 14.9 | 1.280 | 2.319 | 11.359 | 0.312 | 0.406 | 0.492 |
| 30.0 | 20.2 | 29.9 | 1.196 | 2.818 | 11.527 | 0.296 | 0.635 | 0.505 |
| 45.0 | 20.2 | 45.0 | 1.010 | 3.590 | 11.489 | 0.267 | 0.845 | 0.547 |
| 60.0 | 20.3 | 59.8 | 0.770 | 4.571 | 12.349 | 0.216 | 1.036 | 0.618 |
| 75.0 | 20.3 | 74.6 | 0.469 | 4.281 | 12.315 | 0.116 | 0.993 | 0.626 |
| 90.0 | 20.3 | 89.5 | 0.161 | 4.669 | 12.250 | 0.042 | 1.018 | 0.542 |
| 105.0 | 20.3 | 104.5 | 0.310 | 5.529 | 11.570 | 0.055 | 1.121 | 0.430 |
| 120.0 | 20.2 | 119.3 | 0.362 | 6.247 | 11.367 | 0.065 | 1.666 | 0.410 |
| 135.0 | 20.2 | 134.7 | 0.328 | 4.816 | 10.683 | 0.069 | 1.610 | 0.287 |
| 150.0 | 20.3 | 149.7 | 0.256 | 2.879 | 10.115 | 0.063 | 0.727 | 0.154 |
| 165.0 | 20.2 | 164.6 | 0.233 | 2.496 | 10.121 | 0.071 | 0.461 | 0.131 |
| 180.0 | 20.4 | 179.8 | 0.362 | 3.529 | 10.076 | 0.078 | 0.402 | 0.119 |
| 195.0 | 20.3 | 194.9 | 0.381 | 5.037 | 10.104 | 0.087 | 0.836 | 0.154 |
| 210.0 | 20.3 | 210.0 | 0.286 | 5.879 | 9.989 | 0.067 | 1.085 | 0.163 |
| 225.0 | 20.3 | 225.0 | 0.366 | 5.831 | 10.146 | 0.055 | 1.361 | 0.183 |
| 240.0 | 20.2 | 240.7 | 0.451 | 6.157 | 11.069 | 0.070 | 1.937 | 0.236 |
| 255.0 | 20.3 | 255.6 | 0.317 | 6.447 | 11.561 | 0.060 | 1.521 | 0.327 |
| 270.0 | 20.3 | 270.4 | 0.212 | 5.538 | 11.915 | 0.047 | 1.397 | 0.513 |
| 285.0 | 20.3 | 285.2 | 0.405 | 6.423 | 12.090 | 0.108 | 1.258 | 0.660 |
| 300.0 | 20.3 | 299.9 | 0.736 | 4.743 | 11.785 | 0.209 | 1.032 | 0.696 |
| 315.0 | 20.2 | 314.6 | 0.924 | 3.564 | 11.605 | 0.264 | 0.742 | 0.615 |
| 330.0 | 20.2 | 329.6 | 1.184 | 2.627 | 11.585 | 0.295 | 0.472 | 0.555 |
| 345.0 | 20.2 | 344.7 | 1.336 | 2.010 | 11.579 | 0.311 | 0.269 | 0.516 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.27: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.1 | 1.439 | 2.178 | 12.448 | 0.337 | 0.266 | 0.681 |
| 15.0 | 25.3 | 15.0 | 1.423 | 2.503 | 12.081 | 0.332 | 0.418 | 0.675 |
| 30.0 | 25.3 | 30.0 | 1.396 | 3.335 | 12.066 | 0.314 | 0.628 | 0.683 |
| 45.0 | 25.3 | 45.0 | 1.228 | 3.794 | 12.052 | 0.283 | 0.835 | 0.707 |
| 60.0 | 25.4 | 59.9 | 0.813 | 4.967 | 12.667 | 0.228 | 1.047 | 0.744 |
| 75.0 | 25.4 | 74.8 | 0.422 | 4.411 | 12.561 | 0.120 | 0.961 | 0.671 |
| 90.0 | 25.4 | 89.7 | 0.198 | 4.552 | 12.227 | 0.050 | 1.005 | 0.529 |
| 105.0 | 25.4 | 104.7 | 0.275 | 5.612 | 11.393 | 0.064 | 1.152 | 0.396 |
| 120.0 | 25.3 | 119.8 | 0.329 | 6.304 | 10.516 | 0.080 | 2.169 | 0.393 |
| 135.0 | 25.3 | 134.8 | 0.301 | 5.141 | 10.244 | 0.086 | 1.531 | 0.225 |
| 150.0 | 25.4 | 149.7 | 0.275 | 3.136 | 9.988 | 0.084 | 0.931 | 0.138 |
| 165.0 | 25.6 | 164.7 | 0.355 | 2.667 | 10.023 | 0.098 | 0.529 | 0.114 |
| 180.0 | 25.6 | 179.8 | 0.390 | 3.382 | 10.115 | 0.106 | 0.406 | 0.111 |
| 195.0 | 25.6 | 195.0 | 0.358 | 3.742 | 10.033 | 0.095 | 0.563 | 0.115 |
| 210.0 | 25.4 | 210.0 | 0.291 | 4.378 | 9.973 | 0.068 | 0.911 | 0.164 |
| 225.0 | 25.4 | 225.0 | 0.212 | 5.532 | 9.983 | 0.057 | 1.304 | 0.219 |
| 240.0 | 25.4 | 240.2 | 0.263 | 7.299 | 9.939 | 0.066 | 2.012 | 0.257 |
| 255.0 | 25.4 | 255.3 | 0.348 | 7.413 | 11.402 | 0.066 | 1.519 | 0.283 |
| 270.0 | 25.4 | 270.2 | 0.234 | 5.676 | 12.036 | 0.056 | 1.360 | 0.491 |
| 285.0 | 25.4 | 285.1 | 0.395 | 6.447 | 12.345 | 0.111 | 1.238 | 0.712 |
| 300.0 | 25.4 | 299.9 | 0.894 | 4.569 | 12.701 | 0.218 | 1.008 | 0.814 |
| 315.0 | 25.4 | 314.8 | 1.078 | 3.382 | 12.229 | 0.277 | 0.699 | 0.773 |
| 330.0 | 25.3 | 329.8 | 1.307 | 2.869 | 12.043 | 0.311 | 0.464 | 0.734 |
| 345.0 | 25.3 | 344.8 | 1.424 | 2.337 | 12.369 | 0.332 | 0.285 | 0.701 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.28: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.590 | 2.460 | 13.271 | 0.353 | 0.321 | 0.905 |
| 15.0 | 30.5 | 15.0 | 1.582 | 2.777 | 12.748 | 0.347 | 0.438 | 0.896 |
| 30.0 | 30.4 | 30.1 | 1.408 | 3.296 | 12.550 | 0.330 | 0.624 | 0.886 |
| 45.0 | 30.4 | 45.1 | 1.219 | 4.046 | 12.612 | 0.294 | 0.845 | 0.883 |
| 60.0 | 30.4 | 60.0 | 0.872 | 4.743 | 12.920 | 0.237 | 1.061 | 0.872 |
| 75.0 | 30.5 | 74.9 | 0.434 | 4.486 | 12.834 | 0.126 | 0.959 | 0.742 |
| 90.0 | 30.5 | 89.8 | 0.234 | 4.636 | 12.022 | 0.059 | 1.028 | 0.516 |
| 105.0 | 30.5 | 104.8 | 0.337 | 5.333 | 11.272 | 0.077 | 1.261 | 0.365 |
| 120.0 | 30.3 | 119.9 | 0.497 | 6.690 | 10.075 | 0.100 | 2.308 | 0.360 |
| 135.0 | 30.4 | 134.8 | 0.408 | 5.173 | 9.990 | 0.107 | 1.559 | 0.206 |
| 150.0 | 30.7 | 149.7 | 0.424 | 3.347 | 9.996 | 0.127 | 0.967 | 0.152 |
| 165.0 | 31.0 | 164.7 | 0.539 | 3.609 | 10.007 | 0.143 | 0.587 | 0.111 |
| 180.0 | 30.6 | 179.7 | 0.633 | 3.998 | 9.957 | 0.158 | 0.585 | 0.120 |
| 195.0 | 31.0 | 195.0 | 0.485 | 4.040 | 10.033 | 0.131 | 0.700 | 0.119 |
| 210.0 | 30.7 | 210.2 | 0.537 | 4.908 | 9.982 | 0.117 | 1.041 | 0.176 |
| 225.0 | 30.4 | 225.2 | 0.426 | 5.859 | 10.039 | 0.100 | 1.568 | 0.293 |
| 240.0 | 30.4 | 240.2 | 0.470 | 7.835 | 9.915 | 0.087 | 2.185 | 0.361 |
| 255.0 | 30.5 | 255.2 | 0.336 | 8.389 | 11.509 | 0.077 | 1.478 | 0.259 |
| 270.0 | 30.5 | 270.1 | 0.267 | 5.535 | 11.841 | 0.065 | 1.271 | 0.473 |
| 285.0 | 30.5 | 285.1 | 0.460 | 6.992 | 12.548 | 0.115 | 1.197 | 0.763 |
| 300.0 | 30.5 | 299.9 | 0.780 | 5.244 | 12.946 | 0.226 | 0.980 | 0.943 |
| 315.0 | 30.5 | 314.9 | 1.184 | 4.006 | 12.708 | 0.287 | 0.706 | 0.944 |
| 330.0 | 30.5 | 329.9 | 1.325 | 3.140 | 12.808 | 0.326 | 0.485 | 0.934 |
| 345.0 | 30.4 | 344.9 | 1.430 | 2.719 | 12.814 | 0.345 | 0.362 | 0.916 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.29: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.9 | -27.2 | 1.828 | 12.006 | 14.694 | 0.372 | 1.456 | 0.615 |
| 15.0 | -1.4 | -21.1 | 1.738 | 8.146 | 12.383 | 0.366 | 1.428 | 0.583 |
| 30.0 | -3.4 | 33.0 | 1.850 | 12.977 | 14.196 | 0.321 | 2.138 | 0.821 |
| 45.0 | -4.5 | -99.2 | 1.765 | 12.214 | 14.622 | 0.306 | 2.239 | 0.900 |
| 60.0 | -5.1 | -111.1 | 2.012 | 13.695 | 14.601 | 0.293 | 2.363 | 1.026 |
| 75.0 | -0.6 | -51.8 | 1.884 | 13.247 | 15.029 | 0.281 | 2.525 | 0.997 |
| 90.0 | 0.2 | 7.1 | 2.044 | 17.691 | 15.009 | 0.315 | 2.535 | 0.916 |
| 105.0 | 0.4 | 50.3 | 1.985 | 14.773 | 15.244 | 0.303 | 2.421 | 0.931 |
| 120.0 | -0.6 | 93.8 | 3.434 | 13.725 | 15.598 | 0.232 | 2.503 | 1.057 |
| 135.0 | -3.6 | 82.6 | 2.628 | 12.122 | 14.092 | 0.285 | 2.524 | 0.993 |
| 150.0 | -3.7 | 46.3 | 1.948 | 12.265 | 14.628 | 0.325 | 2.279 | 0.817 |
| 165.0 | -2.8 | 41.1 | 1.859 | 13.227 | 13.454 | 0.337 | 1.943 | 0.717 |
| 180.0 | -1.1 | 19.7 | 1.623 | 14.659 | 14.632 | 0.363 | 1.667 | 0.641 |
| 195.0 | -0.6 | 31.3 | 1.715 | 7.306 | 13.367 | 0.365 | 1.676 | 0.667 |
| 210.0 | 0.3 | 36.8 | 1.661 | 8.506 | 13.175 | 0.365 | 1.755 | 0.698 |
| 225.0 | 0.9 | 387.4 | 1.705 | 13.702 | 13.988 | 0.349 | 1.976 | 0.777 |
| 240.0 | 0.8 | 281.2 | 1.970 | 17.754 | 14.506 | 0.261 | 2.491 | 1.022 |
| 255.0 | 0.6 | 284.9 | 2.894 | 18.844 | 15.001 | 0.295 | 2.439 | 1.007 |
| 270.0 | -2.0 | 276.9 | 2.161 | 10.651 | 13.714 | 0.638 | 3.307 | 1.524 |
| 285.0 | 0.2 | 292.5 | 1.806 | 13.959 | 14.917 | 0.334 | 2.170 | 0.882 |
| 300.0 | -0.9 | -202.8 | 4.858 | 20.675 | 14.950 | 0.368 | 2.231 | 0.914 |
| 315.0 | 0.3 | 306.3 | 2.568 | 10.569 | 14.658 | 0.368 | 1.873 | 0.755 |
| 330.0 | 0.4 | 314.6 | 1.570 | 8.692 | 14.137 | 0.378 | 1.707 | 0.705 |
| 345.0 | 0.0 | 322.0 | 1.650 | 8.818 | 12.606 | 0.372 | 1.530 | 0.647 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.30: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.6 | -26.8 | 1.919 | 6.390 | 11.725 | 0.426 | 1.298 | 0.624 |
| 15.0 | 3.5 | -19.4 | 1.856 | 5.651 | 11.507 | 0.427 | 1.166 | 0.594 |
| 30.0 | 3.3 | -13.2 | 1.946 | 4.606 | 11.313 | 0.431 | 1.040 | 0.572 |
| 45.0 | 3.0 | -8.2 | 1.802 | 5.120 | 11.548 | 0.425 | 1.112 | 0.570 |
| 60.0 | 2.9 | 2.2 | 2.241 | 4.854 | 11.481 | 0.417 | 1.212 | 0.570 |
| 75.0 | 2.7 | 8.1 | 1.703 | 7.025 | 11.989 | 0.412 | 1.434 | 0.602 |
| 90.0 | 2.9 | 14.0 | 1.913 | 14.826 | 14.564 | 0.397 | 1.660 | 0.670 |
| 105.0 | 3.1 | 24.7 | 1.806 | 12.138 | 13.911 | 0.387 | 1.659 | 0.694 |
| 120.0 | 3.1 | 21.7 | 1.894 | 12.752 | 15.499 | 0.410 | 1.434 | 0.670 |
| 135.0 | 3.1 | 26.2 | 1.955 | 12.658 | 14.173 | 0.408 | 1.389 | 0.669 |
| 150.0 | 3.2 | 33.4 | 1.834 | 7.871 | 12.535 | 0.406 | 1.436 | 0.649 |
| 165.0 | 3.3 | 38.7 | 1.774 | 7.415 | 12.314 | 0.404 | 1.490 | 0.658 |
| 180.0 | 3.9 | 146.8 | 1.587 | 7.720 | 13.901 | 0.276 | 1.462 | 0.448 |
| 195.0 | 3.7 | 23.7 | 1.973 | 7.648 | 13.328 | 0.407 | 1.581 | 0.663 |
| 210.0 | 3.8 | 388.6 | 3.788 | 6.431 | 12.984 | 0.407 | 1.718 | 0.704 |
| 225.0 | 4.2 | 359.3 | 1.684 | 15.048 | 15.152 | 0.368 | 2.028 | 0.818 |
| 240.0 | 4.4 | 283.9 | 1.619 | 17.601 | 15.159 | 0.271 | 2.359 | 1.047 |
| 255.0 | 4.1 | 286.1 | 3.567 | 15.641 | 15.219 | 0.314 | 2.370 | 1.060 |
| 270.0 | 4.0 | 291.3 | 2.868 | 14.426 | 15.236 | 0.351 | 2.174 | 0.994 |
| 285.0 | 4.2 | 295.7 | 3.392 | 10.273 | 15.163 | 0.374 | 2.018 | 0.916 |
| 300.0 | 4.4 | 301.0 | 4.232 | 8.643 | 13.691 | 0.386 | 1.852 | 0.811 |
| 315.0 | 4.3 | 310.6 | 1.632 | 7.423 | 13.556 | 0.397 | 1.713 | 0.751 |
| 330.0 | 4.1 | 318.7 | 1.710 | 8.385 | 12.752 | 0.414 | 1.532 | 0.696 |
| 345.0 | 3.8 | 324.2 | 1.800 | 7.033 | 13.013 | 0.421 | 1.491 | 0.667 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.31: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 8.8 | -5.3 | 2.354 | 4.692 | 11.476 | 0.484 | 0.754 | 0.611 |
| 15.0 | 8.4 | 6.8 | 2.519 | 3.820 | 11.336 | 0.481 | 0.866 | 0.598 |
| 30.0 | 8.0 | 16.1 | 2.437 | 4.737 | 11.517 | 0.472 | 1.048 | 0.597 |
| 45.0 | 8.0 | 30.6 | 2.010 | 6.839 | 11.664 | 0.451 | 1.306 | 0.633 |
| 60.0 | 8.4 | 49.7 | 1.661 | 7.118 | 12.915 | 0.409 | 1.703 | 0.741 |
| 75.0 | 8.3 | 59.0 | 2.328 | 14.134 | 14.705 | 0.379 | 1.876 | 0.857 |
| 90.0 | 8.6 | 73.9 | 2.630 | 10.833 | 15.410 | 0.289 | 2.109 | 1.079 |
| 105.0 | 8.5 | 82.1 | 2.289 | 16.548 | 15.655 | 0.192 | 2.334 | 1.195 |
| 120.0 | 8.3 | 92.0 | 1.282 | 20.087 | 15.127 | 0.149 | 2.363 | 1.122 |
| 135.0 | 8.1 | 99.6 | 1.308 | 16.805 | 14.610 | 0.151 | 2.353 | 1.054 |
| 150.0 | 8.1 | 87.4 | 1.537 | 15.660 | 15.258 | 0.276 | 2.192 | 0.971 |
| 165.0 | 8.1 | 125.9 | 2.749 | 9.082 | 14.152 | 0.234 | 1.819 | 0.617 |
| 180.0 | 9.1 | 174.8 | 0.740 | 5.124 | 10.845 | 0.161 | 1.348 | 0.304 |
| 195.0 | 9.6 | 195.2 | 0.833 | 5.008 | 10.996 | 0.163 | 1.199 | 0.210 |
| 210.0 | 8.5 | 274.0 | 1.876 | 19.204 | 15.342 | 0.220 | 2.564 | 1.129 |
| 225.0 | 8.3 | 275.4 | 1.876 | 19.629 | 14.995 | 0.217 | 2.573 | 1.146 |
| 240.0 | 8.3 | 276.6 | 2.424 | 19.233 | 14.934 | 0.215 | 2.589 | 1.161 |
| 255.0 | 8.4 | 280.1 | 2.124 | 15.575 | 15.447 | 0.237 | 2.447 | 1.173 |
| 270.0 | 8.5 | 283.8 | 2.878 | 15.662 | 16.255 | 0.281 | 2.349 | 1.175 |
| 285.0 | 9.4 | 289.4 | 3.399 | 10.546 | 14.177 | 0.336 | 2.151 | 1.072 |
| 300.0 | 9.7 | 300.2 | 1.457 | 7.719 | 13.520 | 0.392 | 1.793 | 0.888 |
| 315.0 | 9.5 | 313.0 | 1.975 | 6.447 | 12.495 | 0.436 | 1.502 | 0.756 |
| 330.0 | 9.3 | 327.3 | 2.114 | 5.687 | 11.779 | 0.467 | 1.120 | 0.690 |
| 345.0 | 9.1 | 341.2 | 2.323 | 5.332 | 11.368 | 0.480 | 0.913 | 0.646 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.32: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.7 | -1.3 | 2.175 | 3.318 | 11.795 | 0.522 | 0.590 | 0.692 |
| 15.0 | 14.7 | 13.8 | 2.225 | 3.741 | 11.687 | 0.517 | 0.738 | 0.675 |
| 30.0 | 14.6 | 29.0 | 2.034 | 5.503 | 11.609 | 0.501 | 1.029 | 0.691 |
| 45.0 | 14.7 | 44.2 | 1.957 | 6.484 | 12.025 | 0.464 | 1.341 | 0.746 |
| 60.0 | 14.8 | 58.9 | 1.579 | 9.285 | 13.542 | 0.406 | 1.680 | 0.892 |
| 75.0 | 14.6 | 71.8 | 4.051 | 9.708 | 16.287 | 0.341 | 1.875 | 1.149 |
| 90.0 | 14.4 | 86.4 | 1.197 | 11.147 | 16.090 | 0.135 | 2.183 | 1.254 |
| 105.0 | 14.4 | 101.2 | 1.515 | 12.714 | 15.965 | 0.131 | 2.184 | 0.991 |
| 120.0 | 14.2 | 115.1 | 1.270 | 12.033 | 13.855 | 0.138 | 2.126 | 0.754 |
| 135.0 | 14.4 | 130.4 | 1.699 | 17.730 | 13.677 | 0.126 | 2.049 | 0.608 |
| 150.0 | 14.8 | 148.0 | 0.734 | 5.561 | 11.439 | 0.113 | 1.406 | 0.391 |
| 165.0 | 14.7 | 162.9 | 0.523 | 4.667 | 10.528 | 0.126 | 1.036 | 0.328 |
| 180.0 | 14.6 | 178.3 | 0.653 | 4.948 | 10.408 | 0.133 | 0.916 | 0.260 |
| 195.0 | 14.8 | 193.9 | 0.557 | 5.574 | 10.109 | 0.120 | 1.076 | 0.233 |
| 210.0 | 14.8 | 209.8 | 0.856 | 6.720 | 10.866 | 0.123 | 1.514 | 0.232 |
| 225.0 | 14.1 | 234.1 | 1.581 | 15.747 | 14.078 | 0.168 | 2.491 | 0.615 |
| 240.0 | 13.4 | 253.5 | 0.858 | 15.732 | 14.154 | 0.158 | 2.680 | 0.824 |
| 255.0 | 13.3 | 265.5 | 2.269 | 16.481 | 15.806 | 0.163 | 2.736 | 1.056 |
| 270.0 | 13.9 | 276.0 | 1.866 | 19.017 | 14.984 | 0.175 | 2.648 | 1.257 |
| 285.0 | 14.8 | 287.1 | 2.864 | 8.872 | 14.932 | 0.316 | 2.228 | 1.224 |
| 300.0 | 15.0 | 299.9 | 1.668 | 8.189 | 14.242 | 0.405 | 1.749 | 1.022 |
| 315.0 | 14.8 | 314.0 | 1.747 | 7.587 | 12.362 | 0.464 | 1.334 | 0.862 |
| 330.0 | 14.7 | 328.7 | 2.059 | 5.646 | 12.059 | 0.501 | 0.970 | 0.775 |
| 345.0 | 14.7 | 343.6 | 2.031 | 3.796 | 11.983 | 0.516 | 0.685 | 0.722 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.33: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.0 | -0.6 | 2.243 | 3.325 | 12.584 | 0.553 | 0.571 | 0.894 |
| 15.0 | 20.0 | 14.6 | 2.286 | 4.794 | 12.675 | 0.547 | 0.731 | 0.880 |
| 30.0 | 20.0 | 29.8 | 2.160 | 5.679 | 12.386 | 0.528 | 1.002 | 0.887 |
| 45.0 | 20.0 | 44.8 | 1.910 | 7.478 | 12.362 | 0.491 | 1.294 | 0.933 |
| 60.0 | 20.0 | 59.5 | 1.678 | 8.959 | 13.628 | 0.425 | 1.595 | 1.062 |
| 75.0 | 20.1 | 73.8 | 1.421 | 8.961 | 15.705 | 0.309 | 1.811 | 1.274 |
| 90.0 | 19.8 | 88.0 | 1.167 | 12.569 | 15.853 | 0.123 | 2.114 | 1.250 |
| 105.0 | 19.9 | 103.3 | 1.165 | 11.294 | 14.295 | 0.119 | 2.190 | 0.875 |
| 120.0 | 19.9 | 118.3 | 0.676 | 7.949 | 12.275 | 0.108 | 2.349 | 0.684 |
| 135.0 | 19.7 | 133.8 | 0.840 | 8.372 | 11.467 | 0.129 | 2.230 | 0.478 |
| 150.0 | 19.6 | 148.5 | 1.411 | 7.993 | 12.420 | 0.165 | 1.674 | 0.376 |
| 165.0 | 19.9 | 163.9 | 0.835 | 4.585 | 10.673 | 0.164 | 1.029 | 0.274 |
| 180.0 | 20.3 | 179.2 | 0.825 | 4.807 | 10.606 | 0.164 | 0.791 | 0.218 |
| 195.0 | 20.0 | 194.7 | 0.721 | 5.812 | 10.148 | 0.156 | 1.188 | 0.278 |
| 210.0 | 19.8 | 211.0 | 0.751 | 7.649 | 10.874 | 0.144 | 1.879 | 0.352 |
| 225.0 | 19.6 | 228.0 | 0.717 | 13.232 | 14.057 | 0.113 | 2.424 | 0.435 |
| 240.0 | 19.5 | 244.4 | 0.817 | 15.759 | 13.877 | 0.129 | 2.899 | 0.575 |
| 255.0 | 19.2 | 259.4 | 1.677 | 18.347 | 14.209 | 0.151 | 2.896 | 0.844 |
| 270.0 | 19.4 | 273.3 | 1.871 | 17.891 | 15.175 | 0.166 | 2.802 | 1.257 |
| 285.0 | 20.1 | 286.3 | 1.493 | 10.466 | 15.181 | 0.298 | 2.311 | 1.346 |
| 300.0 | 20.1 | 300.0 | 1.556 | 7.604 | 13.777 | 0.416 | 1.711 | 1.213 |
| 315.0 | 20.1 | 314.4 | 1.915 | 4.879 | 12.965 | 0.484 | 1.245 | 1.071 |
| 330.0 | 20.1 | 329.3 | 2.003 | 3.891 | 12.694 | 0.526 | 0.897 | 0.994 |
| 345.0 | 20.0 | 344.3 | 2.224 | 3.119 | 12.796 | 0.545 | 0.650 | 0.936 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.34: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.2 | 2.003 | 3.651 | 13.902 | 0.573 | 0.624 | 1.222 |
| 15.0 | 25.3 | 14.9 | 2.106 | 5.045 | 13.524 | 0.569 | 0.775 | 1.198 |
| 30.0 | 25.2 | 30.0 | 2.007 | 7.007 | 13.407 | 0.554 | 1.018 | 1.185 |
| 45.0 | 25.2 | 44.9 | 2.014 | 6.864 | 13.185 | 0.510 | 1.262 | 1.193 |
| 60.0 | 25.2 | 59.7 | 1.654 | 9.135 | 13.773 | 0.438 | 1.546 | 1.264 |
| 75.0 | 25.2 | 74.1 | 1.714 | 8.946 | 15.765 | 0.310 | 1.766 | 1.393 |
| 90.0 | 25.0 | 88.7 | 1.406 | 14.914 | 15.424 | 0.117 | 2.115 | 1.221 |
| 105.0 | 25.0 | 104.4 | 0.649 | 8.364 | 13.826 | 0.123 | 2.429 | 0.771 |
| 120.0 | 24.7 | 118.5 | 1.002 | 14.040 | 14.158 | 0.148 | 3.115 | 0.765 |
| 135.0 | 24.6 | 132.1 | 1.147 | 20.255 | 14.363 | 0.172 | 2.397 | 0.517 |
| 150.0 | 24.8 | 149.1 | 1.004 | 6.402 | 10.507 | 0.187 | 1.609 | 0.311 |
| 165.0 | 25.7 | 164.1 | 0.830 | 4.804 | 10.252 | 0.180 | 0.987 | 0.229 |
| 180.0 | 26.4 | 179.6 | 0.979 | 4.916 | 10.167 | 0.183 | 0.655 | 0.161 |
| 195.0 | 25.8 | 194.9 | 0.837 | 5.060 | 10.072 | 0.176 | 1.090 | 0.250 |
| 210.0 | 25.0 | 210.7 | 0.889 | 7.888 | 10.248 | 0.190 | 1.808 | 0.359 |
| 225.0 | 24.7 | 226.5 | 0.778 | 7.798 | 11.693 | 0.158 | 2.534 | 0.478 |
| 240.0 | 24.6 | 242.1 | 0.787 | 14.020 | 12.934 | 0.140 | 3.305 | 0.594 |
| 255.0 | 24.7 | 257.1 | 0.609 | 15.322 | 13.781 | 0.143 | 3.003 | 0.682 |
| 270.0 | 24.9 | 271.9 | 1.274 | 15.844 | 15.014 | 0.135 | 2.844 | 1.205 |
| 285.0 | 25.2 | 286.0 | 4.395 | 12.101 | 14.745 | 0.306 | 2.366 | 1.444 |
| 300.0 | 25.3 | 300.1 | 1.590 | 7.707 | 14.131 | 0.425 | 1.760 | 1.424 |
| 315.0 | 25.3 | 314.7 | 2.077 | 4.676 | 13.493 | 0.500 | 1.250 | 1.341 |
| 330.0 | 25.3 | 329.7 | 1.942 | 4.047 | 13.857 | 0.544 | 0.920 | 1.297 |
| 345.0 | 25.3 | 344.7 | 2.084 | 3.419 | 14.120 | 0.565 | 0.664 | 1.253 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.35: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | 0.0 | 2.035 | 4.012 | 14.713 | 0.587 | 0.694 | 1.575 |
| 15.0 | 30.4 | 15.1 | 2.100 | 5.681 | 14.341 | 0.585 | 0.840 | 1.544 |
| 30.0 | 30.4 | 30.1 | 1.981 | 7.047 | 14.134 | 0.565 | 1.058 | 1.504 |
| 45.0 | 30.4 | 45.0 | 2.049 | 7.069 | 13.882 | 0.527 | 1.277 | 1.479 |
| 60.0 | 30.3 | 59.7 | 1.779 | 7.255 | 14.189 | 0.453 | 1.502 | 1.479 |
| 75.0 | 30.3 | 74.3 | 1.972 | 9.886 | 16.051 | 0.315 | 1.726 | 1.495 |
| 90.0 | 30.1 | 89.0 | 1.067 | 14.748 | 15.623 | 0.122 | 2.176 | 1.201 |
| 105.0 | 30.0 | 104.3 | 2.185 | 18.916 | 15.735 | 0.155 | 2.866 | 0.784 |
| 120.0 | 29.7 | 118.6 | 1.385 | 13.357 | 12.135 | 0.172 | 2.934 | 0.610 |
| 135.0 | 29.9 | 134.1 | 1.030 | 8.139 | 11.190 | 0.209 | 2.293 | 0.402 |
| 150.0 | 30.5 | 147.4 | 1.062 | 7.871 | 11.113 | 0.223 | 1.607 | 0.377 |
| 165.0 | 31.0 | 162.7 | 1.253 | 6.053 | 10.021 | 0.250 | 1.186 | 0.348 |
| 180.0 | 31.1 | 178.6 | 1.343 | 6.170 | 10.297 | 0.273 | 1.172 | 0.363 |
| 195.0 | 31.4 | 194.6 | 1.492 | 6.444 | 10.619 | 0.264 | 1.350 | 0.350 |
| 210.0 | 30.8 | 211.0 | 1.217 | 6.681 | 10.344 | 0.229 | 1.832 | 0.342 |
| 225.0 | 29.7 | 226.0 | 1.021 | 7.869 | 12.108 | 0.229 | 2.494 | 0.522 |
| 240.0 | 29.8 | 240.9 | 0.606 | 8.685 | 11.839 | 0.153 | 3.249 | 0.642 |
| 255.0 | 29.9 | 256.1 | 1.852 | 21.722 | 14.680 | 0.164 | 3.084 | 0.681 |
| 270.0 | 30.1 | 271.2 | 1.395 | 16.993 | 15.297 | 0.136 | 2.850 | 1.149 |
| 285.0 | 30.3 | 285.7 | 2.188 | 12.315 | 14.900 | 0.297 | 2.452 | 1.559 |
| 300.0 | 30.4 | 300.1 | 1.724 | 7.386 | 14.207 | 0.432 | 1.846 | 1.642 |
| 315.0 | 30.4 | 315.0 | 1.997 | 5.395 | 14.899 | 0.510 | 1.384 | 1.628 |
| 330.0 | 30.4 | 329.9 | 1.964 | 4.627 | 14.570 | 0.552 | 0.998 | 1.619 |
| 345.0 | 30.4 | 345.0 | 2.207 | 3.944 | 14.628 | 0.575 | 0.758 | 1.597 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.36: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.5 | -109.1 | 0.997 | 4.579 | 11.325 | 0.192 | 1.408 | 0.380 |
| 15.0 | -2.4 | -147.9 | 0.938 | 4.316 | 11.558 | 0.184 | 1.060 | 0.434 |
| 30.0 | -1.8 | -69.5 | 1.187 | 5.242 | 11.579 | 0.187 | 1.602 | 0.427 |
| 45.0 | -0.2 | 21.9 | 0.822 | 4.373 | 11.390 | 0.204 | 1.091 | 0.408 |
| 60.0 | 0.6 | 49.0 | 0.635 | 5.070 | 11.335 | 0.158 | 1.343 | 0.466 |
| 75.0 | 0.7 | 69.2 | 0.546 | 5.416 | 11.878 | 0.092 | 1.396 | 0.500 |
| 90.0 | 0.1 | 90.9 | 0.234 | 5.330 | 12.042 | 0.031 | 1.401 | 0.533 |
| 105.0 | -0.5 | 103.2 | 0.425 | 5.487 | 12.003 | 0.053 | 1.417 | 0.536 |
| 120.0 | -1.4 | 113.0 | 0.560 | 5.861 | 12.227 | 0.085 | 1.424 | 0.529 |
| 135.0 | -2.1 | 121.6 | 0.470 | 5.506 | 11.806 | 0.117 | 1.363 | 0.508 |
| 150.0 | -2.6 | 131.7 | 0.552 | 4.934 | 11.327 | 0.149 | 1.244 | 0.475 |
| 165.0 | -2.5 | 144.3 | 0.711 | 4.244 | 11.409 | 0.176 | 1.019 | 0.438 |
| 180.0 | -1.7 | 164.5 | 0.877 | 3.437 | 11.509 | 0.194 | 0.594 | 0.388 |
| 195.0 | 0.4 | 236.4 | 0.812 | 5.481 | 11.526 | 0.126 | 1.374 | 0.423 |
| 210.0 | 0.0 | 244.9 | 0.778 | 6.046 | 11.485 | 0.104 | 1.428 | 0.453 |
| 225.0 | -0.2 | 253.3 | 0.520 | 5.712 | 11.628 | 0.078 | 1.460 | 0.484 |
| 240.0 | -0.4 | 261.6 | 0.349 | 5.587 | 11.675 | 0.052 | 1.454 | 0.503 |
| 255.0 | -0.6 | 270.4 | 0.214 | 5.897 | 11.926 | 0.033 | 1.434 | 0.516 |
| 270.0 | -0.6 | 279.9 | 0.378 | 5.994 | 11.934 | 0.047 | 1.397 | 0.510 |
| 285.0 | -0.5 | 288.9 | 0.626 | 5.786 | 12.034 | 0.080 | 1.348 | 0.494 |
| 300.0 | -0.5 | 297.9 | 0.685 | 5.977 | 11.803 | 0.114 | 1.280 | 0.470 |
| 315.0 | -0.4 | 307.0 | 0.656 | 5.526 | 11.289 | 0.143 | 1.204 | 0.440 |
| 330.0 | -0.6 | 315.5 | 0.792 | 5.148 | 11.235 | 0.168 | 1.134 | 0.414 |
| 345.0 | -0.8 | 324.3 | 0.954 | 4.826 | 11.355 | 0.186 | 1.058 | 0.389 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.37: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.8 | -29.6 | 1.016 | 5.316 | 10.957 | 0.227 | 1.077 | 0.390 |
| 15.0 | 3.6 | -22.7 | 1.031 | 4.312 | 11.064 | 0.236 | 1.028 | 0.382 |
| 30.0 | 3.5 | -14.4 | 1.127 | 4.080 | 10.924 | 0.241 | 0.955 | 0.375 |
| 45.0 | 3.5 | -3.6 | 1.268 | 4.129 | 10.958 | 0.245 | 0.898 | 0.384 |
| 60.0 | 3.8 | 26.6 | 0.926 | 4.943 | 11.530 | 0.226 | 1.078 | 0.435 |
| 75.0 | 4.3 | 58.4 | 0.711 | 5.386 | 11.845 | 0.139 | 1.336 | 0.515 |
| 90.0 | 4.5 | 79.9 | 0.346 | 5.470 | 12.063 | 0.046 | 1.317 | 0.550 |
| 105.0 | 4.4 | 95.6 | 0.212 | 5.792 | 12.196 | 0.025 | 1.323 | 0.551 |
| 120.0 | 4.1 | 107.0 | 0.295 | 6.017 | 12.408 | 0.049 | 1.312 | 0.537 |
| 135.0 | 3.8 | 115.4 | 0.373 | 5.948 | 11.786 | 0.071 | 1.307 | 0.518 |
| 150.0 | 3.5 | 124.8 | 0.596 | 5.599 | 11.680 | 0.095 | 1.247 | 0.481 |
| 165.0 | 3.4 | 134.5 | 0.733 | 5.460 | 11.634 | 0.116 | 1.146 | 0.438 |
| 180.0 | 3.3 | 146.5 | 0.902 | 4.793 | 11.370 | 0.133 | 0.991 | 0.389 |
| 195.0 | 3.4 | 162.2 | 0.837 | 5.012 | 11.483 | 0.144 | 0.872 | 0.342 |
| 210.0 | 4.4 | 216.2 | 0.716 | 4.731 | 10.948 | 0.131 | 1.092 | 0.294 |
| 225.0 | 4.3 | 237.0 | 0.621 | 5.277 | 11.399 | 0.101 | 1.309 | 0.370 |
| 240.0 | 4.4 | 250.4 | 0.456 | 5.591 | 11.745 | 0.071 | 1.405 | 0.425 |
| 255.0 | 4.5 | 262.4 | 0.277 | 6.236 | 11.607 | 0.040 | 1.448 | 0.473 |
| 270.0 | 4.6 | 274.8 | 0.157 | 5.697 | 12.003 | 0.023 | 1.437 | 0.508 |
| 285.0 | 4.7 | 287.5 | 0.407 | 7.085 | 12.128 | 0.069 | 1.395 | 0.504 |
| 300.0 | 4.7 | 299.8 | 0.512 | 5.641 | 11.545 | 0.130 | 1.304 | 0.476 |
| 315.0 | 4.5 | 310.0 | 0.753 | 5.863 | 11.631 | 0.174 | 1.225 | 0.441 |
| 330.0 | 4.1 | 317.1 | 0.879 | 5.833 | 11.136 | 0.196 | 1.186 | 0.421 |
| 345.0 | 3.9 | 323.5 | 0.994 | 5.600 | 11.000 | 0.214 | 1.137 | 0.405 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.38: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.4 | -3.6 | 1.339 | 3.899 | 10.879 | 0.283 | 0.591 | 0.397 |
| 15.0 | 9.5 | 11.9 | 1.170 | 3.467 | 11.142 | 0.279 | 0.698 | 0.420 |
| 30.0 | 9.6 | 27.4 | 1.092 | 3.965 | 11.185 | 0.260 | 0.899 | 0.455 |
| 45.0 | 9.7 | 42.7 | 0.847 | 4.469 | 11.823 | 0.220 | 1.076 | 0.496 |
| 60.0 | 9.8 | 57.5 | 0.595 | 4.918 | 11.809 | 0.157 | 1.167 | 0.537 |
| 75.0 | 9.9 | 72.9 | 0.356 | 4.818 | 12.276 | 0.080 | 1.118 | 0.564 |
| 90.0 | 9.9 | 88.0 | 0.140 | 5.203 | 12.250 | 0.031 | 1.113 | 0.561 |
| 105.0 | 9.9 | 103.1 | 0.224 | 5.616 | 12.075 | 0.041 | 1.136 | 0.529 |
| 120.0 | 9.5 | 116.4 | 0.422 | 5.752 | 12.247 | 0.063 | 1.129 | 0.501 |
| 135.0 | 9.2 | 130.3 | 0.592 | 5.239 | 11.980 | 0.079 | 1.003 | 0.433 |
| 150.0 | 9.1 | 144.4 | 0.553 | 4.654 | 11.452 | 0.090 | 0.959 | 0.371 |
| 165.0 | 9.0 | 159.4 | 0.492 | 4.012 | 10.979 | 0.102 | 0.991 | 0.334 |
| 180.0 | 9.4 | 176.8 | 0.504 | 4.238 | 10.468 | 0.106 | 0.944 | 0.280 |
| 195.0 | 9.7 | 193.7 | 0.647 | 4.464 | 10.479 | 0.108 | 0.909 | 0.213 |
| 210.0 | 9.6 | 211.3 | 0.747 | 5.121 | 11.147 | 0.099 | 1.100 | 0.220 |
| 225.0 | 9.5 | 228.4 | 0.620 | 6.827 | 11.061 | 0.093 | 1.412 | 0.266 |
| 240.0 | 9.5 | 243.7 | 0.475 | 5.991 | 11.626 | 0.075 | 1.553 | 0.339 |
| 255.0 | 9.8 | 257.4 | 0.408 | 6.151 | 12.030 | 0.053 | 1.555 | 0.408 |
| 270.0 | 9.9 | 271.7 | 0.207 | 7.451 | 11.940 | 0.034 | 1.568 | 0.481 |
| 285.0 | 10.0 | 285.8 | 0.389 | 7.852 | 11.701 | 0.064 | 1.475 | 0.509 |
| 300.0 | 9.9 | 300.0 | 0.584 | 5.415 | 11.506 | 0.142 | 1.343 | 0.500 |
| 315.0 | 9.8 | 313.7 | 0.801 | 5.170 | 11.400 | 0.205 | 1.113 | 0.452 |
| 330.0 | 9.6 | 327.5 | 1.046 | 4.828 | 11.158 | 0.248 | 0.889 | 0.414 |
| 345.0 | 9.4 | 341.6 | 1.159 | 4.195 | 10.858 | 0.272 | 0.744 | 0.395 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.39: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.9 | -1.1 | 1.492 | 3.230 | 11.093 | 0.314 | 0.476 | 0.432 |
| 15.0 | 14.9 | 14.1 | 1.333 | 3.428 | 11.336 | 0.309 | 0.670 | 0.450 |
| 30.0 | 14.9 | 29.2 | 1.270 | 4.366 | 11.572 | 0.284 | 0.898 | 0.483 |
| 45.0 | 15.0 | 44.2 | 0.916 | 4.877 | 12.126 | 0.238 | 1.060 | 0.529 |
| 60.0 | 15.0 | 59.0 | 0.694 | 5.422 | 12.649 | 0.165 | 1.178 | 0.575 |
| 75.0 | 15.1 | 74.0 | 0.352 | 5.054 | 12.416 | 0.082 | 1.011 | 0.577 |
| 90.0 | 15.1 | 89.0 | 0.167 | 4.860 | 12.369 | 0.045 | 1.007 | 0.554 |
| 105.0 | 15.1 | 104.1 | 0.370 | 5.129 | 11.798 | 0.056 | 1.057 | 0.498 |
| 120.0 | 14.9 | 118.3 | 0.440 | 5.741 | 12.057 | 0.073 | 1.239 | 0.509 |
| 135.0 | 14.9 | 133.5 | 0.476 | 5.255 | 11.364 | 0.085 | 1.207 | 0.429 |
| 150.0 | 14.9 | 148.6 | 0.471 | 4.249 | 11.010 | 0.093 | 0.950 | 0.349 |
| 165.0 | 15.0 | 163.8 | 0.376 | 3.726 | 10.568 | 0.088 | 0.614 | 0.276 |
| 180.0 | 14.9 | 178.9 | 0.494 | 3.921 | 10.266 | 0.105 | 0.720 | 0.254 |
| 195.0 | 15.0 | 194.3 | 0.381 | 4.803 | 10.180 | 0.078 | 0.778 | 0.216 |
| 210.0 | 15.0 | 209.9 | 0.525 | 5.394 | 10.316 | 0.087 | 1.217 | 0.194 |
| 225.0 | 14.8 | 226.2 | 0.496 | 5.356 | 10.702 | 0.089 | 1.666 | 0.203 |
| 240.0 | 14.9 | 241.8 | 0.595 | 6.133 | 11.382 | 0.078 | 1.852 | 0.279 |
| 255.0 | 15.1 | 256.1 | 0.409 | 6.578 | 11.743 | 0.063 | 1.759 | 0.356 |
| 270.0 | 15.1 | 270.8 | 0.245 | 7.554 | 11.978 | 0.048 | 1.708 | 0.458 |
| 285.0 | 15.2 | 285.4 | 0.382 | 7.550 | 11.893 | 0.066 | 1.641 | 0.520 |
| 300.0 | 15.1 | 299.9 | 0.622 | 5.986 | 11.763 | 0.150 | 1.430 | 0.541 |
| 315.0 | 15.0 | 314.3 | 0.889 | 5.455 | 11.291 | 0.225 | 1.114 | 0.504 |
| 330.0 | 14.9 | 328.9 | 1.206 | 4.186 | 11.186 | 0.274 | 0.818 | 0.462 |
| 345.0 | 14.9 | 343.8 | 1.318 | 3.815 | 11.266 | 0.304 | 0.549 | 0.438 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.40: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.1 | -0.5 | 1.462 | 3.547 | 11.342 | 0.341 | 0.505 | 0.534 |
| 15.0 | 20.1 | 14.7 | 1.518 | 3.767 | 11.639 | 0.334 | 0.728 | 0.542 |
| 30.0 | 20.1 | 29.8 | 1.358 | 4.350 | 11.729 | 0.308 | 0.985 | 0.573 |
| 45.0 | 20.1 | 44.8 | 1.003 | 5.087 | 11.935 | 0.256 | 1.165 | 0.605 |
| 60.0 | 20.2 | 59.6 | 0.642 | 5.974 | 12.125 | 0.175 | 1.318 | 0.636 |
| 75.0 | 20.2 | 74.4 | 0.343 | 5.325 | 12.310 | 0.086 | 1.021 | 0.598 |
| 90.0 | 20.3 | 89.4 | 0.223 | 4.704 | 12.344 | 0.059 | 0.983 | 0.541 |
| 105.0 | 20.3 | 104.5 | 0.368 | 5.169 | 12.011 | 0.074 | 1.006 | 0.459 |
| 120.0 | 20.1 | 119.2 | 0.349 | 5.755 | 11.238 | 0.092 | 1.623 | 0.510 |
| 135.0 | 20.1 | 134.3 | 0.393 | 5.342 | 10.864 | 0.099 | 1.260 | 0.380 |
| 150.0 | 20.2 | 149.3 | 0.438 | 3.929 | 10.456 | 0.100 | 0.761 | 0.271 |
| 165.0 | 20.1 | 164.3 | 0.574 | 3.335 | 10.577 | 0.130 | 0.635 | 0.279 |
| 180.0 | 20.3 | 179.4 | 0.439 | 3.621 | 10.217 | 0.100 | 0.538 | 0.210 |
| 195.0 | 20.2 | 194.8 | 0.532 | 6.003 | 10.191 | 0.112 | 0.999 | 0.273 |
| 210.0 | 20.1 | 210.0 | 0.586 | 6.894 | 10.102 | 0.103 | 1.370 | 0.300 |
| 225.0 | 20.1 | 225.1 | 0.524 | 7.039 | 10.051 | 0.088 | 1.703 | 0.289 |
| 240.0 | 20.1 | 240.8 | 0.479 | 7.346 | 10.388 | 0.091 | 2.111 | 0.249 |
| 255.0 | 20.2 | 255.5 | 0.481 | 7.875 | 11.154 | 0.076 | 1.847 | 0.340 |
| 270.0 | 20.3 | 270.4 | 0.292 | 7.954 | 11.935 | 0.060 | 1.815 | 0.450 |
| 285.0 | 20.3 | 285.2 | 0.325 | 7.269 | 11.873 | 0.070 | 1.684 | 0.539 |
| 300.0 | 20.2 | 299.9 | 0.684 | 7.492 | 11.955 | 0.158 | 1.472 | 0.603 |
| 315.0 | 20.2 | 314.5 | 0.929 | 5.563 | 11.550 | 0.244 | 1.104 | 0.601 |
| 330.0 | 20.1 | 329.3 | 1.293 | 4.063 | 11.526 | 0.301 | 0.763 | 0.575 |
| 345.0 | 20.1 | 344.4 | 1.371 | 3.544 | 11.505 | 0.330 | 0.514 | 0.546 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.41: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 1.482 | 3.738 | 12.339 | 0.363 | 0.572 | 0.712 |
| 15.0 | 25.2 | 14.9 | 1.484 | 4.269 | 11.942 | 0.356 | 0.793 | 0.714 |
| 30.0 | 25.2 | 30.0 | 1.370 | 5.011 | 12.244 | 0.328 | 1.052 | 0.725 |
| 45.0 | 25.2 | 45.0 | 1.081 | 5.128 | 12.047 | 0.273 | 1.268 | 0.729 |
| 60.0 | 25.3 | 59.8 | 0.667 | 6.244 | 12.881 | 0.187 | 1.444 | 0.712 |
| 75.0 | 25.3 | 74.6 | 0.371 | 5.269 | 12.661 | 0.092 | 1.096 | 0.618 |
| 90.0 | 25.3 | 89.6 | 0.279 | 4.604 | 12.179 | 0.072 | 1.038 | 0.529 |
| 105.0 | 25.3 | 104.6 | 0.415 | 5.186 | 11.766 | 0.094 | 1.019 | 0.414 |
| 120.0 | 25.2 | 119.6 | 0.405 | 5.868 | 10.644 | 0.112 | 1.825 | 0.452 |
| 135.0 | 25.2 | 134.6 | 0.434 | 5.609 | 10.487 | 0.120 | 1.440 | 0.305 |
| 150.0 | 25.3 | 149.5 | 0.579 | 4.789 | 10.278 | 0.140 | 1.174 | 0.264 |
| 165.0 | 25.4 | 164.5 | 0.660 | 3.989 | 10.324 | 0.132 | 0.572 | 0.195 |
| 180.0 | 25.8 | 179.8 | 0.472 | 3.199 | 10.153 | 0.135 | 0.342 | 0.164 |
| 195.0 | 25.6 | 194.9 | 0.675 | 4.319 | 10.104 | 0.120 | 0.687 | 0.193 |
| 210.0 | 25.3 | 210.1 | 0.601 | 6.232 | 10.152 | 0.125 | 1.312 | 0.328 |
| 225.0 | 25.3 | 225.0 | 0.337 | 6.710 | 10.046 | 0.096 | 1.441 | 0.348 |
| 240.0 | 25.2 | 240.3 | 0.510 | 8.367 | 10.089 | 0.100 | 2.129 | 0.330 |
| 255.0 | 25.3 | 255.2 | 0.451 | 8.675 | 11.079 | 0.088 | 1.818 | 0.352 |
| 270.0 | 25.3 | 270.2 | 0.307 | 7.549 | 11.840 | 0.071 | 1.803 | 0.456 |
| 285.0 | 25.3 | 285.1 | 0.355 | 8.425 | 12.085 | 0.076 | 1.787 | 0.564 |
| 300.0 | 25.3 | 299.9 | 0.665 | 7.448 | 11.993 | 0.168 | 1.494 | 0.687 |
| 315.0 | 25.3 | 314.7 | 1.019 | 5.844 | 11.882 | 0.260 | 1.098 | 0.737 |
| 330.0 | 25.2 | 329.6 | 1.391 | 4.882 | 12.157 | 0.320 | 0.779 | 0.741 |
| 345.0 | 25.2 | 344.7 | 1.599 | 3.849 | 12.191 | 0.352 | 0.555 | 0.726 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table T.42: Accelerations at Hangar Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.0 | 1.588 | 4.664 | 13.201 | 0.382 | 0.668 | 0.933 |
| 15.0 | 30.4 | 15.1 | 1.643 | 5.291 | 12.785 | 0.376 | 0.862 | 0.929 |
| 30.0 | 30.4 | 30.1 | 1.390 | 5.654 | 12.765 | 0.347 | 1.103 | 0.918 |
| 45.0 | 30.4 | 45.1 | 1.192 | 5.969 | 13.089 | 0.291 | 1.329 | 0.897 |
| 60.0 | 30.4 | 60.0 | 0.837 | 6.552 | 12.779 | 0.199 | 1.552 | 0.803 |
| 75.0 | 30.4 | 74.7 | 0.340 | 5.212 | 12.490 | 0.099 | 1.200 | 0.643 |
| 90.0 | 30.4 | 89.7 | 0.338 | 4.859 | 11.928 | 0.085 | 1.161 | 0.522 |
| 105.0 | 30.4 | 104.7 | 0.471 | 4.770 | 11.138 | 0.113 | 1.078 | 0.381 |
| 120.0 | 30.3 | 119.7 | 0.497 | 6.748 | 10.428 | 0.140 | 2.199 | 0.434 |
| 135.0 | 30.2 | 134.5 | 0.710 | 6.401 | 10.560 | 0.174 | 1.857 | 0.338 |
| 150.0 | 30.3 | 149.2 | 0.851 | 7.060 | 10.160 | 0.225 | 1.449 | 0.308 |
| 165.0 | 30.8 | 164.0 | 0.859 | 4.207 | 10.036 | 0.198 | 0.687 | 0.212 |
| 180.0 | 31.2 | 179.7 | 0.615 | 4.451 | 9.934 | 0.190 | 0.545 | 0.170 |
| 195.0 | 30.9 | 194.7 | 0.840 | 4.244 | 9.969 | 0.188 | 0.765 | 0.207 |
| 210.0 | 30.5 | 210.3 | 0.795 | 6.988 | 10.229 | 0.203 | 1.442 | 0.363 |
| 225.0 | 30.4 | 225.1 | 0.545 | 6.567 | 10.138 | 0.134 | 1.636 | 0.417 |
| 240.0 | 30.4 | 240.1 | 0.506 | 8.292 | 9.956 | 0.117 | 2.121 | 0.475 |
| 255.0 | 30.4 | 255.1 | 0.489 | 8.442 | 11.338 | 0.107 | 1.666 | 0.371 |
| 270.0 | 30.4 | 270.1 | 0.313 | 7.607 | 11.728 | 0.083 | 1.714 | 0.471 |
| 285.0 | 30.4 | 285.1 | 0.364 | 8.210 | 11.697 | 0.083 | 1.730 | 0.603 |
| 300.0 | 30.4 | 299.9 | 0.647 | 7.759 | 12.273 | 0.179 | 1.480 | 0.775 |
| 315.0 | 30.4 | 314.8 | 1.077 | 6.786 | 12.531 | 0.278 | 1.067 | 0.904 |
| 330.0 | 30.4 | 329.8 | 1.374 | 5.028 | 12.814 | 0.338 | 0.765 | 0.942 |
| 345.0 | 30.4 | 344.9 | 1.379 | 4.493 | 12.820 | 0.368 | 0.625 | 0.939 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex U

Tables of Flight Deck Accelerations – Bretschneider Spectrum (Open Ocean)

Table U.1: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -23.8 | 0.695 | 1.656 | 11.045 | 0.165 | 0.359 | 0.452 |
| 15.0 | -0.2 | -4.6 | 0.687 | 0.845 | 10.965 | 0.154 | 0.125 | 0.401 |
| 30.0 | -0.2 | 16.7 | 0.644 | 1.443 | 10.890 | 0.157 | 0.271 | 0.396 |
| 45.0 | -0.2 | 33.5 | 0.708 | 2.406 | 10.995 | 0.173 | 0.524 | 0.446 |
| 60.0 | -0.3 | 44.5 | 0.732 | 3.087 | 11.557 | 0.184 | 0.725 | 0.498 |
| 75.0 | -0.5 | 52.4 | 0.716 | 4.970 | 12.584 | 0.192 | 0.890 | 0.552 |
| 90.0 | -0.6 | 59.0 | 0.869 | 5.318 | 11.996 | 0.196 | 1.029 | 0.601 |
| 105.0 | -0.7 | 63.4 | 0.948 | 4.944 | 12.354 | 0.192 | 1.085 | 0.627 |
| 120.0 | -1.6 | 96.0 | 0.658 | 6.647 | 12.631 | 0.127 | 1.212 | 0.681 |
| 135.0 | -2.1 | 102.8 | 0.778 | 6.666 | 13.013 | 0.171 | 1.189 | 0.697 |
| 150.0 | -2.4 | 105.0 | 0.865 | 5.503 | 12.471 | 0.176 | 1.165 | 0.701 |
| 165.0 | -2.5 | 106.2 | 0.837 | 6.350 | 13.167 | 0.173 | 1.149 | 0.702 |
| 180.0 | -0.7 | 74.0 | 0.703 | 5.869 | 12.666 | 0.146 | 0.700 | 0.478 |
| 195.0 | -0.0 | 200.3 | 0.419 | 1.540 | 11.174 | 0.120 | 0.314 | 0.344 |
| 210.0 | -0.2 | 382.2 | 0.701 | 3.830 | 11.949 | 0.184 | 0.768 | 0.589 |
| 225.0 | -0.0 | 384.6 | 0.716 | 4.186 | 12.037 | 0.196 | 0.833 | 0.630 |
| 240.0 | 0.7 | 293.3 | 0.935 | 4.590 | 13.145 | 0.209 | 1.078 | 0.768 |
| 255.0 | 0.6 | 292.8 | 0.987 | 5.196 | 13.214 | 0.210 | 1.118 | 0.794 |
| 270.0 | 0.3 | 295.4 | 0.994 | 5.351 | 13.493 | 0.210 | 1.067 | 0.768 |
| 285.0 | 0.2 | 299.4 | 0.718 | 4.319 | 12.801 | 0.211 | 1.039 | 0.736 |
| 300.0 | 0.0 | 303.8 | 0.746 | 5.131 | 11.958 | 0.207 | 0.944 | 0.690 |
| 315.0 | -0.1 | 309.3 | 0.845 | 4.052 | 12.347 | 0.201 | 0.822 | 0.635 |
| 330.0 | -0.1 | 314.8 | 0.757 | 3.529 | 11.605 | 0.192 | 0.691 | 0.585 |
| 345.0 | -0.1 | 322.9 | 0.736 | 2.398 | 11.397 | 0.181 | 0.549 | 0.525 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.2: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.1 | 0.671 | 0.948 | 11.287 | 0.179 | 0.119 | 0.521 |
| 15.0 | 4.8 | 12.8 | 0.687 | 1.024 | 11.174 | 0.181 | 0.176 | 0.520 |
| 30.0 | 4.8 | 27.6 | 0.874 | 1.509 | 11.371 | 0.192 | 0.341 | 0.553 |
| 45.0 | 4.7 | 42.1 | 0.835 | 2.274 | 11.525 | 0.210 | 0.562 | 0.615 |
| 60.0 | 4.4 | 54.6 | 0.884 | 3.299 | 12.065 | 0.223 | 0.807 | 0.686 |
| 75.0 | 4.2 | 58.0 | 0.806 | 3.904 | 12.315 | 0.222 | 0.905 | 0.705 |
| 90.0 | 4.1 | 61.8 | 0.736 | 5.339 | 12.299 | 0.220 | 0.958 | 0.727 |
| 105.0 | 4.1 | 64.0 | 0.690 | 4.551 | 12.540 | 0.219 | 1.004 | 0.741 |
| 120.0 | 4.1 | 65.4 | 0.752 | 4.090 | 12.376 | 0.218 | 1.006 | 0.748 |
| 135.0 | 4.1 | 65.8 | 0.797 | 4.361 | 12.772 | 0.219 | 0.984 | 0.742 |
| 150.0 | 4.6 | 145.4 | 0.410 | 2.092 | 10.841 | 0.101 | 0.475 | 0.219 |
| 165.0 | 4.9 | 163.1 | 0.368 | 1.518 | 10.682 | 0.088 | 0.295 | 0.171 |
| 180.0 | 4.9 | 178.7 | 0.332 | 1.104 | 10.667 | 0.084 | 0.191 | 0.164 |
| 195.0 | 4.9 | 194.1 | 0.339 | 1.364 | 10.703 | 0.085 | 0.299 | 0.180 |
| 210.0 | 4.9 | 210.1 | 0.374 | 2.192 | 10.843 | 0.095 | 0.482 | 0.225 |
| 225.0 | 4.6 | 229.1 | 0.443 | 2.954 | 11.154 | 0.117 | 0.732 | 0.343 |
| 240.0 | 4.6 | 285.6 | 0.722 | 4.873 | 13.549 | 0.204 | 1.105 | 0.906 |
| 255.0 | 4.5 | 287.1 | 0.898 | 5.159 | 13.838 | 0.212 | 1.113 | 0.919 |
| 270.0 | 4.5 | 288.9 | 0.891 | 5.530 | 14.180 | 0.218 | 1.114 | 0.909 |
| 285.0 | 4.7 | 291.1 | 0.928 | 4.554 | 14.006 | 0.227 | 1.089 | 0.895 |
| 300.0 | 4.9 | 301.1 | 0.784 | 3.790 | 12.640 | 0.236 | 0.924 | 0.784 |
| 315.0 | 4.8 | 314.2 | 0.842 | 3.504 | 11.852 | 0.220 | 0.657 | 0.668 |
| 330.0 | 4.8 | 328.5 | 0.813 | 2.248 | 11.426 | 0.201 | 0.407 | 0.596 |
| 345.0 | 4.8 | 343.2 | 0.720 | 1.452 | 11.411 | 0.186 | 0.230 | 0.543 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.3: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.740 | 0.941 | 11.678 | 0.201 | 0.103 | 0.619 |
| 15.0 | 10.0 | 14.4 | 0.716 | 1.080 | 11.684 | 0.204 | 0.163 | 0.619 |
| 30.0 | 10.0 | 29.4 | 0.869 | 1.636 | 11.656 | 0.218 | 0.328 | 0.651 |
| 45.0 | 10.0 | 44.4 | 0.847 | 2.345 | 12.138 | 0.237 | 0.555 | 0.695 |
| 60.0 | 10.0 | 59.2 | 0.925 | 3.453 | 12.378 | 0.250 | 0.842 | 0.817 |
| 75.0 | 10.0 | 73.0 | 0.923 | 4.945 | 13.780 | 0.225 | 1.001 | 0.982 |
| 90.0 | 9.6 | 85.5 | 0.458 | 8.098 | 13.435 | 0.105 | 0.986 | 0.930 |
| 105.0 | 9.3 | 100.2 | 0.622 | 5.775 | 12.345 | 0.117 | 1.105 | 0.578 |
| 120.0 | 9.7 | 117.2 | 0.384 | 5.052 | 11.502 | 0.096 | 1.022 | 0.319 |
| 135.0 | 9.9 | 133.4 | 0.292 | 3.379 | 10.476 | 0.078 | 1.035 | 0.178 |
| 150.0 | 10.0 | 148.9 | 0.211 | 3.446 | 10.232 | 0.066 | 1.050 | 0.133 |
| 165.0 | 10.1 | 164.2 | 0.233 | 3.738 | 10.146 | 0.060 | 0.849 | 0.104 |
| 180.0 | 10.1 | 179.3 | 0.218 | 2.491 | 10.148 | 0.059 | 0.511 | 0.082 |
| 195.0 | 10.1 | 194.6 | 0.246 | 1.922 | 10.352 | 0.062 | 0.495 | 0.088 |
| 210.0 | 10.1 | 210.3 | 0.217 | 2.507 | 10.378 | 0.070 | 0.880 | 0.128 |
| 225.0 | 10.0 | 225.7 | 0.270 | 3.309 | 10.615 | 0.081 | 0.989 | 0.199 |
| 240.0 | 9.8 | 241.9 | 0.380 | 4.260 | 11.432 | 0.099 | 1.033 | 0.340 |
| 255.0 | 9.4 | 259.4 | 0.729 | 5.527 | 12.413 | 0.125 | 1.127 | 0.620 |
| 270.0 | 9.7 | 274.2 | 0.507 | 6.320 | 13.406 | 0.092 | 1.071 | 0.974 |
| 285.0 | 10.1 | 286.7 | 0.809 | 4.598 | 13.489 | 0.227 | 1.090 | 1.061 |
| 300.0 | 10.1 | 300.1 | 0.851 | 3.302 | 12.488 | 0.255 | 0.902 | 0.867 |
| 315.0 | 10.0 | 314.7 | 0.907 | 2.443 | 11.910 | 0.242 | 0.607 | 0.717 |
| 330.0 | 10.0 | 329.7 | 0.853 | 1.705 | 11.786 | 0.222 | 0.362 | 0.664 |
| 345.0 | 10.0 | 344.6 | 0.839 | 1.282 | 11.743 | 0.206 | 0.192 | 0.627 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.4: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.2 | 0.764 | 1.108 | 11.873 | 0.219 | 0.104 | 0.648 |
| 15.0 | 15.2 | 14.8 | 0.764 | 1.223 | 11.719 | 0.224 | 0.168 | 0.652 |
| 30.0 | 15.2 | 29.8 | 0.897 | 1.857 | 12.119 | 0.239 | 0.323 | 0.697 |
| 45.0 | 15.1 | 44.8 | 0.892 | 2.391 | 12.047 | 0.258 | 0.537 | 0.774 |
| 60.0 | 15.2 | 59.6 | 0.951 | 3.299 | 12.995 | 0.266 | 0.816 | 0.942 |
| 75.0 | 15.2 | 74.0 | 0.799 | 4.635 | 13.745 | 0.227 | 0.971 | 1.108 |
| 90.0 | 15.1 | 88.4 | 0.333 | 8.954 | 13.400 | 0.054 | 0.964 | 0.856 |
| 105.0 | 15.0 | 103.3 | 0.474 | 5.505 | 12.203 | 0.092 | 1.050 | 0.471 |
| 120.0 | 15.1 | 118.8 | 0.243 | 4.850 | 10.876 | 0.065 | 1.459 | 0.252 |
| 135.0 | 15.2 | 134.5 | 0.165 | 4.102 | 10.268 | 0.050 | 1.523 | 0.215 |
| 150.0 | 15.2 | 149.7 | 0.274 | 3.537 | 10.369 | 0.069 | 1.054 | 0.152 |
| 165.0 | 15.1 | 164.7 | 0.236 | 2.224 | 10.260 | 0.065 | 0.520 | 0.093 |
| 180.0 | 15.3 | 179.7 | 0.248 | 2.293 | 10.068 | 0.059 | 0.263 | 0.051 |
| 195.0 | 15.2 | 194.6 | 0.245 | 3.146 | 9.940 | 0.058 | 0.455 | 0.053 |
| 210.0 | 15.2 | 209.8 | 0.199 | 3.505 | 9.953 | 0.059 | 0.944 | 0.062 |
| 225.0 | 15.2 | 225.3 | 0.187 | 4.196 | 10.249 | 0.056 | 1.543 | 0.143 |
| 240.0 | 15.1 | 241.1 | 0.359 | 4.622 | 11.511 | 0.071 | 1.420 | 0.254 |
| 255.0 | 15.0 | 256.7 | 0.610 | 5.146 | 12.479 | 0.102 | 1.138 | 0.491 |
| 270.0 | 15.1 | 271.7 | 0.309 | 5.267 | 13.368 | 0.048 | 1.094 | 0.921 |
| 285.0 | 15.3 | 285.9 | 0.825 | 4.513 | 14.063 | 0.226 | 1.118 | 1.179 |
| 300.0 | 15.2 | 300.1 | 0.905 | 3.405 | 12.906 | 0.268 | 0.882 | 0.988 |
| 315.0 | 15.2 | 314.9 | 0.933 | 2.274 | 12.163 | 0.261 | 0.580 | 0.800 |
| 330.0 | 15.2 | 329.9 | 0.874 | 1.726 | 12.191 | 0.241 | 0.342 | 0.708 |
| 345.0 | 15.2 | 344.8 | 0.814 | 1.152 | 11.824 | 0.225 | 0.178 | 0.658 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.5: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.896 | 1.257 | 12.234 | 0.235 | 0.116 | 0.736 |
| 15.0 | 20.3 | 14.9 | 0.815 | 1.477 | 12.220 | 0.240 | 0.166 | 0.745 |
| 30.0 | 20.3 | 29.9 | 0.921 | 1.807 | 12.575 | 0.255 | 0.307 | 0.819 |
| 45.0 | 20.3 | 44.9 | 0.969 | 2.383 | 12.665 | 0.273 | 0.512 | 0.931 |
| 60.0 | 20.3 | 59.8 | 0.992 | 3.689 | 13.178 | 0.277 | 0.785 | 1.107 |
| 75.0 | 20.4 | 74.4 | 0.835 | 5.837 | 14.434 | 0.227 | 0.970 | 1.216 |
| 90.0 | 20.3 | 89.1 | 0.297 | 6.650 | 13.364 | 0.044 | 0.952 | 0.840 |
| 105.0 | 20.2 | 104.0 | 0.461 | 7.244 | 12.440 | 0.075 | 1.167 | 0.417 |
| 120.0 | 20.3 | 119.5 | 0.161 | 5.636 | 10.871 | 0.040 | 1.897 | 0.313 |
| 135.0 | 20.3 | 134.9 | 0.211 | 4.618 | 10.316 | 0.054 | 1.384 | 0.172 |
| 150.0 | 20.4 | 149.6 | 0.308 | 3.008 | 10.126 | 0.063 | 0.705 | 0.088 |
| 165.0 | 20.8 | 164.7 | 0.252 | 2.770 | 10.038 | 0.065 | 0.315 | 0.065 |
| 180.0 | 20.1 | 179.6 | 0.374 | 3.476 | 10.020 | 0.072 | 0.477 | 0.097 |
| 195.0 | 20.7 | 195.0 | 0.380 | 3.295 | 10.016 | 0.067 | 0.473 | 0.080 |
| 210.0 | 20.5 | 210.1 | 0.288 | 4.363 | 9.945 | 0.061 | 0.799 | 0.099 |
| 225.0 | 20.3 | 225.0 | 0.186 | 4.750 | 9.924 | 0.049 | 1.377 | 0.139 |
| 240.0 | 20.3 | 240.5 | 0.217 | 6.239 | 10.944 | 0.043 | 1.854 | 0.217 |
| 255.0 | 20.2 | 255.9 | 0.486 | 6.832 | 12.150 | 0.082 | 1.237 | 0.405 |
| 270.0 | 20.3 | 270.9 | 0.358 | 5.336 | 13.403 | 0.043 | 1.128 | 0.909 |
| 285.0 | 20.4 | 285.5 | 0.802 | 4.525 | 14.031 | 0.223 | 1.160 | 1.282 |
| 300.0 | 20.3 | 300.1 | 0.947 | 3.234 | 13.519 | 0.275 | 0.892 | 1.143 |
| 315.0 | 20.3 | 315.0 | 0.977 | 2.350 | 12.802 | 0.272 | 0.572 | 0.950 |
| 330.0 | 20.3 | 329.9 | 0.933 | 1.672 | 12.342 | 0.255 | 0.335 | 0.831 |
| 345.0 | 20.3 | 344.9 | 0.914 | 1.218 | 12.450 | 0.240 | 0.180 | 0.755 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.6: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.816 | 1.418 | 12.477 | 0.243 | 0.139 | 0.891 |
| 15.0 | 25.4 | 14.9 | 0.884 | 1.650 | 12.596 | 0.249 | 0.170 | 0.915 |
| 30.0 | 25.4 | 29.9 | 0.897 | 1.972 | 12.927 | 0.264 | 0.293 | 0.997 |
| 45.0 | 25.4 | 44.9 | 0.930 | 2.792 | 13.283 | 0.281 | 0.488 | 1.122 |
| 60.0 | 25.4 | 59.8 | 1.029 | 3.692 | 13.969 | 0.284 | 0.760 | 1.286 |
| 75.0 | 25.4 | 74.6 | 0.747 | 4.606 | 14.414 | 0.228 | 0.951 | 1.329 |
| 90.0 | 25.4 | 89.4 | 0.330 | 7.108 | 13.221 | 0.042 | 0.970 | 0.834 |
| 105.0 | 25.4 | 104.4 | 0.311 | 5.841 | 11.873 | 0.061 | 1.272 | 0.361 |
| 120.0 | 25.4 | 119.9 | 0.342 | 6.653 | 10.715 | 0.055 | 2.090 | 0.303 |
| 135.0 | 25.3 | 134.9 | 0.435 | 4.425 | 10.137 | 0.070 | 1.206 | 0.135 |
| 150.0 | 25.4 | 149.9 | 0.437 | 2.889 | 10.105 | 0.082 | 0.582 | 0.106 |
| 165.0 | 25.3 | 164.9 | 0.375 | 3.240 | 10.168 | 0.087 | 0.401 | 0.130 |
| 180.0 | 25.6 | 179.9 | 0.353 | 3.062 | 10.242 | 0.081 | 0.370 | 0.139 |
| 195.0 | 25.3 | 194.7 | 0.385 | 3.360 | 10.124 | 0.086 | 0.619 | 0.149 |
| 210.0 | 25.3 | 209.8 | 0.486 | 4.007 | 10.109 | 0.080 | 0.788 | 0.140 |
| 225.0 | 25.1 | 224.5 | 0.382 | 5.083 | 9.903 | 0.063 | 1.339 | 0.203 |
| 240.0 | 25.4 | 240.2 | 0.235 | 6.346 | 10.197 | 0.054 | 2.283 | 0.299 |
| 255.0 | 25.4 | 255.6 | 0.287 | 5.776 | 11.378 | 0.067 | 1.367 | 0.332 |
| 270.0 | 25.4 | 270.6 | 0.285 | 5.450 | 13.271 | 0.044 | 1.166 | 0.903 |
| 285.0 | 25.4 | 285.4 | 0.782 | 4.803 | 14.828 | 0.221 | 1.210 | 1.380 |
| 300.0 | 25.4 | 300.1 | 0.984 | 4.012 | 13.955 | 0.278 | 0.915 | 1.305 |
| 315.0 | 25.4 | 315.1 | 0.929 | 2.523 | 13.449 | 0.278 | 0.586 | 1.132 |
| 330.0 | 25.4 | 330.0 | 0.892 | 1.796 | 12.859 | 0.263 | 0.348 | 1.009 |
| 345.0 | 25.4 | 345.0 | 0.909 | 1.397 | 12.618 | 0.249 | 0.201 | 0.921 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.7: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 8.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 0.786 | 1.447 | 13.095 | 0.247 | 0.161 | 1.066 |
| 15.0 | 30.5 | 14.9 | 0.863 | 1.574 | 13.397 | 0.253 | 0.171 | 1.093 |
| 30.0 | 30.5 | 29.9 | 0.876 | 2.129 | 13.371 | 0.268 | 0.279 | 1.184 |
| 45.0 | 30.5 | 44.9 | 0.918 | 3.088 | 14.059 | 0.285 | 0.472 | 1.313 |
| 60.0 | 30.5 | 59.8 | 0.942 | 4.199 | 14.291 | 0.288 | 0.751 | 1.455 |
| 75.0 | 30.5 | 74.7 | 0.729 | 4.210 | 14.360 | 0.229 | 0.924 | 1.440 |
| 90.0 | 30.5 | 89.5 | 0.332 | 7.590 | 13.368 | 0.044 | 0.981 | 0.834 |
| 105.0 | 30.5 | 104.6 | 0.325 | 6.860 | 11.880 | 0.052 | 1.453 | 0.343 |
| 120.0 | 30.4 | 119.9 | 0.501 | 6.037 | 10.144 | 0.080 | 2.204 | 0.310 |
| 135.0 | 30.5 | 134.7 | 0.344 | 3.635 | 10.082 | 0.080 | 1.131 | 0.126 |
| 150.0 | 30.5 | 149.9 | 0.396 | 3.333 | 10.334 | 0.085 | 0.668 | 0.159 |
| 165.0 | 30.5 | 164.8 | 0.351 | 2.884 | 10.437 | 0.085 | 0.459 | 0.176 |
| 180.0 | 30.5 | 179.9 | 0.450 | 3.242 | 10.416 | 0.089 | 0.502 | 0.194 |
| 195.0 | 30.6 | 194.9 | 0.414 | 3.829 | 10.449 | 0.086 | 0.684 | 0.190 |
| 210.0 | 30.4 | 209.9 | 0.379 | 4.121 | 10.210 | 0.089 | 0.900 | 0.185 |
| 225.0 | 30.4 | 224.9 | 0.320 | 4.339 | 9.966 | 0.079 | 1.114 | 0.149 |
| 240.0 | 30.4 | 240.1 | 0.444 | 7.255 | 10.249 | 0.077 | 2.261 | 0.321 |
| 255.0 | 30.5 | 255.3 | 0.242 | 5.734 | 11.245 | 0.061 | 1.576 | 0.280 |
| 270.0 | 30.5 | 270.4 | 0.227 | 5.061 | 13.323 | 0.048 | 1.212 | 0.897 |
| 285.0 | 30.5 | 285.3 | 0.754 | 5.271 | 14.832 | 0.219 | 1.235 | 1.480 |
| 300.0 | 30.5 | 300.2 | 0.918 | 3.803 | 14.354 | 0.279 | 0.953 | 1.464 |
| 315.0 | 30.5 | 315.1 | 0.898 | 2.783 | 14.335 | 0.280 | 0.612 | 1.316 |
| 330.0 | 30.5 | 330.0 | 0.931 | 2.202 | 13.663 | 0.266 | 0.373 | 1.185 |
| 345.0 | 30.5 | 345.0 | 0.816 | 1.539 | 13.251 | 0.251 | 0.229 | 1.094 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.8: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.0 | -14.9 | 0.488 | 1.794 | 10.602 | 0.122 | 0.390 | 0.297 |
| 15.0 | -0.1 | -6.0 | 0.486 | 1.125 | 10.593 | 0.124 | 0.250 | 0.289 |
| 30.0 | -0.2 | 5.3 | 0.536 | 1.534 | 10.632 | 0.123 | 0.328 | 0.285 |
| 45.0 | -0.2 | 22.7 | 0.529 | 2.283 | 10.832 | 0.120 | 0.598 | 0.291 |
| 60.0 | -0.1 | 39.4 | 0.378 | 2.822 | 10.966 | 0.110 | 0.796 | 0.305 |
| 75.0 | -0.1 | 53.3 | 0.390 | 3.437 | 11.124 | 0.094 | 0.891 | 0.313 |
| 90.0 | -0.1 | 68.5 | 0.254 | 3.330 | 11.344 | 0.062 | 0.917 | 0.308 |
| 105.0 | -0.1 | 88.4 | 0.163 | 3.496 | 11.007 | 0.012 | 0.912 | 0.283 |
| 120.0 | -0.3 | 99.9 | 0.254 | 3.566 | 10.831 | 0.030 | 0.942 | 0.290 |
| 135.0 | -0.5 | 108.2 | 0.304 | 3.285 | 11.023 | 0.051 | 0.951 | 0.301 |
| 150.0 | -0.8 | 115.2 | 0.336 | 3.143 | 10.865 | 0.068 | 0.947 | 0.308 |
| 165.0 | -1.0 | 119.3 | 0.370 | 3.228 | 11.011 | 0.076 | 0.925 | 0.311 |
| 180.0 | -0.5 | 53.8 | 0.496 | 2.724 | 10.778 | 0.112 | 0.631 | 0.296 |
| 195.0 | 0.1 | 338.6 | 0.433 | 3.079 | 10.828 | 0.106 | 0.728 | 0.311 |
| 210.0 | 0.2 | 248.5 | 0.351 | 3.440 | 11.114 | 0.059 | 0.925 | 0.343 |
| 225.0 | 0.1 | 255.3 | 0.332 | 3.519 | 10.994 | 0.045 | 0.926 | 0.339 |
| 240.0 | 0.1 | 263.7 | 0.238 | 3.328 | 11.075 | 0.026 | 0.911 | 0.329 |
| 255.0 | 0.1 | 275.2 | 0.156 | 3.404 | 11.016 | 0.021 | 0.887 | 0.329 |
| 270.0 | 0.2 | 288.2 | 0.238 | 3.137 | 11.281 | 0.054 | 0.879 | 0.350 |
| 285.0 | 0.2 | 298.6 | 0.297 | 3.252 | 11.400 | 0.081 | 0.864 | 0.358 |
| 300.0 | 0.1 | 308.0 | 0.335 | 3.142 | 11.212 | 0.098 | 0.832 | 0.353 |
| 315.0 | 0.1 | 317.0 | 0.414 | 3.290 | 11.099 | 0.108 | 0.766 | 0.341 |
| 330.0 | 0.1 | 326.3 | 0.466 | 3.091 | 10.969 | 0.115 | 0.674 | 0.325 |
| 345.0 | 0.0 | 336.0 | 0.468 | 2.599 | 10.736 | 0.119 | 0.542 | 0.307 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.9: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.9 | -2.4 | 0.529 | 1.008 | 10.798 | 0.143 | 0.160 | 0.346 |
| 15.0 | 4.8 | 12.3 | 0.540 | 1.397 | 10.723 | 0.142 | 0.316 | 0.347 |
| 30.0 | 4.8 | 27.1 | 0.567 | 1.987 | 10.829 | 0.137 | 0.537 | 0.354 |
| 45.0 | 4.8 | 42.0 | 0.475 | 2.539 | 11.109 | 0.126 | 0.706 | 0.364 |
| 60.0 | 4.8 | 56.5 | 0.338 | 3.221 | 11.131 | 0.103 | 0.811 | 0.365 |
| 75.0 | 4.8 | 71.2 | 0.228 | 2.957 | 11.245 | 0.059 | 0.826 | 0.342 |
| 90.0 | 4.8 | 85.7 | 0.059 | 3.041 | 10.979 | 0.013 | 0.827 | 0.309 |
| 105.0 | 4.7 | 100.0 | 0.124 | 3.068 | 10.892 | 0.022 | 0.860 | 0.295 |
| 120.0 | 4.4 | 110.5 | 0.218 | 3.702 | 11.204 | 0.044 | 0.877 | 0.288 |
| 135.0 | 4.2 | 120.6 | 0.244 | 2.873 | 10.815 | 0.058 | 0.844 | 0.271 |
| 150.0 | 4.5 | 143.2 | 0.336 | 2.356 | 10.743 | 0.074 | 0.594 | 0.224 |
| 165.0 | 4.7 | 161.6 | 0.347 | 1.562 | 10.732 | 0.079 | 0.343 | 0.195 |
| 180.0 | 4.9 | 178.1 | 0.348 | 1.399 | 10.755 | 0.080 | 0.259 | 0.186 |
| 195.0 | 4.9 | 194.3 | 0.360 | 1.772 | 10.795 | 0.079 | 0.415 | 0.190 |
| 210.0 | 4.9 | 210.7 | 0.345 | 2.232 | 10.731 | 0.075 | 0.620 | 0.209 |
| 225.0 | 4.9 | 227.2 | 0.284 | 2.713 | 10.882 | 0.068 | 0.781 | 0.244 |
| 240.0 | 4.8 | 243.0 | 0.209 | 3.199 | 10.920 | 0.054 | 0.871 | 0.284 |
| 255.0 | 4.9 | 257.2 | 0.158 | 3.027 | 11.018 | 0.030 | 0.865 | 0.305 |
| 270.0 | 5.0 | 271.5 | 0.042 | 3.021 | 11.010 | 0.008 | 0.827 | 0.324 |
| 285.0 | 5.0 | 286.0 | 0.235 | 3.308 | 11.533 | 0.049 | 0.813 | 0.359 |
| 300.0 | 5.0 | 300.3 | 0.413 | 3.118 | 11.638 | 0.096 | 0.803 | 0.384 |
| 315.0 | 5.0 | 314.4 | 0.461 | 2.775 | 11.033 | 0.123 | 0.707 | 0.379 |
| 330.0 | 4.9 | 328.6 | 0.482 | 2.412 | 10.853 | 0.135 | 0.554 | 0.364 |
| 345.0 | 4.9 | 343.1 | 0.507 | 1.684 | 10.826 | 0.141 | 0.354 | 0.351 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.10: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.1 | -0.6 | 0.760 | 0.847 | 11.125 | 0.163 | 0.089 | 0.396 |
| 15.0 | 10.1 | 14.4 | 0.647 | 1.415 | 11.079 | 0.160 | 0.266 | 0.396 |
| 30.0 | 10.1 | 29.5 | 0.541 | 1.970 | 11.041 | 0.154 | 0.478 | 0.401 |
| 45.0 | 10.1 | 44.5 | 0.512 | 2.718 | 11.143 | 0.139 | 0.635 | 0.405 |
| 60.0 | 10.1 | 59.3 | 0.363 | 2.839 | 11.179 | 0.106 | 0.740 | 0.398 |
| 75.0 | 10.2 | 74.2 | 0.216 | 3.147 | 11.462 | 0.053 | 0.714 | 0.360 |
| 90.0 | 10.1 | 89.0 | 0.054 | 2.912 | 11.118 | 0.013 | 0.728 | 0.315 |
| 105.0 | 10.1 | 103.9 | 0.115 | 3.495 | 10.917 | 0.025 | 0.783 | 0.284 |
| 120.0 | 10.0 | 118.6 | 0.189 | 4.046 | 10.966 | 0.041 | 0.867 | 0.250 |
| 135.0 | 10.0 | 133.7 | 0.207 | 3.466 | 10.773 | 0.049 | 0.806 | 0.212 |
| 150.0 | 10.0 | 148.9 | 0.186 | 2.770 | 10.461 | 0.054 | 0.752 | 0.178 |
| 165.0 | 10.1 | 164.1 | 0.223 | 2.386 | 10.384 | 0.056 | 0.563 | 0.152 |
| 180.0 | 10.1 | 179.3 | 0.261 | 1.945 | 10.399 | 0.057 | 0.342 | 0.133 |
| 195.0 | 10.1 | 194.6 | 0.234 | 1.920 | 10.273 | 0.057 | 0.398 | 0.124 |
| 210.0 | 10.1 | 210.1 | 0.223 | 2.300 | 10.406 | 0.055 | 0.703 | 0.141 |
| 225.0 | 10.1 | 225.6 | 0.268 | 2.853 | 10.814 | 0.051 | 0.882 | 0.178 |
| 240.0 | 10.1 | 240.8 | 0.228 | 3.446 | 11.037 | 0.044 | 0.961 | 0.226 |
| 255.0 | 10.2 | 255.6 | 0.198 | 3.618 | 11.106 | 0.029 | 0.893 | 0.270 |
| 270.0 | 10.2 | 270.4 | 0.067 | 3.305 | 11.306 | 0.015 | 0.818 | 0.320 |
| 285.0 | 10.2 | 285.1 | 0.199 | 3.265 | 11.426 | 0.049 | 0.789 | 0.374 |
| 300.0 | 10.1 | 299.9 | 0.380 | 3.118 | 11.489 | 0.104 | 0.765 | 0.411 |
| 315.0 | 10.1 | 314.6 | 0.510 | 2.817 | 11.245 | 0.138 | 0.640 | 0.410 |
| 330.0 | 10.1 | 329.5 | 0.606 | 2.199 | 11.174 | 0.153 | 0.464 | 0.401 |
| 345.0 | 10.1 | 344.4 | 0.731 | 1.446 | 11.243 | 0.161 | 0.255 | 0.396 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.11: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.3 | 0.640 | 0.922 | 10.946 | 0.181 | 0.086 | 0.435 |
| 15.0 | 15.2 | 14.8 | 0.634 | 1.413 | 10.999 | 0.178 | 0.263 | 0.435 |
| 30.0 | 15.2 | 29.9 | 0.758 | 2.224 | 11.240 | 0.170 | 0.461 | 0.442 |
| 45.0 | 15.2 | 44.9 | 0.553 | 2.837 | 11.416 | 0.153 | 0.633 | 0.450 |
| 60.0 | 15.2 | 59.8 | 0.398 | 2.832 | 11.513 | 0.115 | 0.760 | 0.438 |
| 75.0 | 15.3 | 74.7 | 0.196 | 2.768 | 11.207 | 0.055 | 0.671 | 0.380 |
| 90.0 | 15.3 | 89.6 | 0.074 | 3.027 | 11.197 | 0.020 | 0.674 | 0.318 |
| 105.0 | 15.3 | 104.5 | 0.130 | 3.226 | 11.124 | 0.027 | 0.743 | 0.271 |
| 120.0 | 15.2 | 119.3 | 0.168 | 4.113 | 10.848 | 0.035 | 1.023 | 0.244 |
| 135.0 | 15.2 | 134.6 | 0.214 | 3.901 | 10.599 | 0.039 | 1.002 | 0.202 |
| 150.0 | 15.2 | 149.7 | 0.173 | 2.408 | 10.271 | 0.039 | 0.600 | 0.145 |
| 165.0 | 15.2 | 164.7 | 0.192 | 1.686 | 10.195 | 0.048 | 0.374 | 0.122 |
| 180.0 | 15.3 | 179.7 | 0.172 | 1.403 | 10.119 | 0.038 | 0.170 | 0.095 |
| 195.0 | 15.2 | 194.8 | 0.242 | 2.806 | 10.063 | 0.049 | 0.389 | 0.089 |
| 210.0 | 15.2 | 209.9 | 0.160 | 3.189 | 10.006 | 0.041 | 0.693 | 0.085 |
| 225.0 | 15.2 | 225.2 | 0.208 | 3.747 | 10.287 | 0.041 | 1.135 | 0.120 |
| 240.0 | 15.2 | 240.4 | 0.193 | 3.926 | 10.765 | 0.037 | 1.135 | 0.184 |
| 255.0 | 15.3 | 255.3 | 0.134 | 3.373 | 10.920 | 0.030 | 0.931 | 0.238 |
| 270.0 | 15.3 | 270.2 | 0.079 | 3.230 | 10.994 | 0.022 | 0.826 | 0.313 |
| 285.0 | 15.3 | 285.0 | 0.195 | 3.402 | 11.333 | 0.052 | 0.780 | 0.392 |
| 300.0 | 15.2 | 299.9 | 0.389 | 3.251 | 11.320 | 0.113 | 0.766 | 0.452 |
| 315.0 | 15.2 | 314.7 | 0.528 | 2.703 | 11.220 | 0.152 | 0.616 | 0.454 |
| 330.0 | 15.2 | 329.7 | 0.677 | 2.047 | 11.200 | 0.170 | 0.426 | 0.441 |
| 345.0 | 15.2 | 344.7 | 0.684 | 1.352 | 11.119 | 0.179 | 0.216 | 0.435 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.12: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.795 | 1.097 | 11.382 | 0.198 | 0.104 | 0.506 |
| 15.0 | 20.3 | 14.9 | 0.808 | 1.572 | 11.447 | 0.195 | 0.272 | 0.506 |
| 30.0 | 20.3 | 30.0 | 0.685 | 2.127 | 11.359 | 0.185 | 0.469 | 0.518 |
| 45.0 | 20.3 | 45.0 | 0.563 | 2.806 | 11.533 | 0.165 | 0.647 | 0.528 |
| 60.0 | 20.3 | 59.9 | 0.423 | 3.356 | 11.761 | 0.124 | 0.802 | 0.499 |
| 75.0 | 20.4 | 74.8 | 0.225 | 2.854 | 11.404 | 0.058 | 0.641 | 0.403 |
| 90.0 | 20.4 | 89.8 | 0.096 | 3.085 | 11.182 | 0.026 | 0.635 | 0.315 |
| 105.0 | 20.4 | 104.8 | 0.140 | 3.643 | 10.876 | 0.032 | 0.694 | 0.252 |
| 120.0 | 20.3 | 119.7 | 0.187 | 4.827 | 10.591 | 0.039 | 1.262 | 0.246 |
| 135.0 | 20.3 | 134.8 | 0.163 | 3.442 | 10.082 | 0.042 | 1.031 | 0.171 |
| 150.0 | 20.3 | 149.8 | 0.142 | 2.051 | 10.061 | 0.044 | 0.575 | 0.114 |
| 165.0 | 20.4 | 164.8 | 0.203 | 1.457 | 10.090 | 0.049 | 0.306 | 0.087 |
| 180.0 | 20.4 | 179.9 | 0.185 | 1.719 | 10.039 | 0.050 | 0.179 | 0.080 |
| 195.0 | 20.4 | 194.9 | 0.156 | 2.580 | 9.981 | 0.048 | 0.371 | 0.069 |
| 210.0 | 20.4 | 209.9 | 0.183 | 4.305 | 9.976 | 0.037 | 0.619 | 0.077 |
| 225.0 | 20.4 | 225.0 | 0.134 | 4.234 | 9.961 | 0.034 | 0.896 | 0.082 |
| 240.0 | 20.4 | 240.2 | 0.163 | 4.979 | 10.225 | 0.038 | 1.381 | 0.145 |
| 255.0 | 20.4 | 255.1 | 0.184 | 3.744 | 10.937 | 0.034 | 0.912 | 0.208 |
| 270.0 | 20.4 | 270.1 | 0.098 | 3.228 | 10.919 | 0.028 | 0.805 | 0.307 |
| 285.0 | 20.4 | 285.0 | 0.194 | 3.568 | 11.480 | 0.055 | 0.757 | 0.414 |
| 300.0 | 20.4 | 299.9 | 0.412 | 3.312 | 11.610 | 0.122 | 0.762 | 0.516 |
| 315.0 | 20.3 | 314.8 | 0.587 | 2.713 | 11.619 | 0.164 | 0.590 | 0.535 |
| 330.0 | 20.3 | 329.8 | 0.711 | 2.151 | 11.393 | 0.184 | 0.398 | 0.520 |
| 345.0 | 20.3 | 344.8 | 0.721 | 1.473 | 11.326 | 0.194 | 0.197 | 0.508 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.13: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.757 | 1.391 | 11.801 | 0.212 | 0.128 | 0.633 |
| 15.0 | 25.4 | 15.0 | 0.847 | 1.635 | 11.862 | 0.208 | 0.279 | 0.632 |
| 30.0 | 25.4 | 30.0 | 0.706 | 2.438 | 11.783 | 0.197 | 0.467 | 0.639 |
| 45.0 | 25.4 | 45.0 | 0.642 | 2.781 | 11.971 | 0.176 | 0.646 | 0.640 |
| 60.0 | 25.4 | 60.0 | 0.430 | 3.401 | 11.989 | 0.133 | 0.824 | 0.590 |
| 75.0 | 25.4 | 74.9 | 0.198 | 2.950 | 11.413 | 0.062 | 0.627 | 0.428 |
| 90.0 | 25.4 | 89.9 | 0.113 | 3.032 | 11.140 | 0.032 | 0.617 | 0.310 |
| 105.0 | 25.4 | 104.8 | 0.171 | 3.464 | 10.941 | 0.040 | 0.691 | 0.237 |
| 120.0 | 25.4 | 119.9 | 0.196 | 5.279 | 10.187 | 0.049 | 1.578 | 0.246 |
| 135.0 | 25.4 | 134.9 | 0.160 | 2.797 | 9.988 | 0.052 | 1.001 | 0.135 |
| 150.0 | 25.4 | 149.9 | 0.185 | 2.498 | 9.972 | 0.059 | 0.655 | 0.097 |
| 165.0 | 25.5 | 164.9 | 0.268 | 2.022 | 10.021 | 0.077 | 0.399 | 0.091 |
| 180.0 | 25.6 | 179.9 | 0.204 | 1.534 | 9.935 | 0.059 | 0.130 | 0.044 |
| 195.0 | 25.5 | 195.0 | 0.240 | 2.869 | 10.018 | 0.073 | 0.385 | 0.074 |
| 210.0 | 25.5 | 210.0 | 0.225 | 3.837 | 9.962 | 0.051 | 0.675 | 0.088 |
| 225.0 | 25.4 | 225.0 | 0.152 | 4.819 | 9.916 | 0.043 | 0.996 | 0.105 |
| 240.0 | 25.4 | 240.0 | 0.142 | 4.747 | 9.899 | 0.040 | 1.247 | 0.094 |
| 255.0 | 25.4 | 255.0 | 0.193 | 3.619 | 10.782 | 0.040 | 0.851 | 0.185 |
| 270.0 | 25.4 | 270.0 | 0.128 | 3.193 | 10.920 | 0.034 | 0.760 | 0.300 |
| 285.0 | 25.4 | 285.0 | 0.200 | 3.572 | 11.408 | 0.058 | 0.716 | 0.441 |
| 300.0 | 25.4 | 299.9 | 0.496 | 4.016 | 12.297 | 0.130 | 0.744 | 0.609 |
| 315.0 | 25.4 | 314.9 | 0.631 | 2.865 | 12.040 | 0.173 | 0.557 | 0.647 |
| 330.0 | 25.4 | 329.9 | 0.663 | 2.221 | 11.806 | 0.196 | 0.365 | 0.644 |
| 345.0 | 25.4 | 344.9 | 0.765 | 1.574 | 11.722 | 0.208 | 0.185 | 0.634 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.14: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 4.0$ m and $T_p = 15.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 0.849 | 1.415 | 12.398 | 0.224 | 0.158 | 0.802 |
| 15.0 | 30.5 | 15.0 | 0.838 | 1.869 | 12.464 | 0.221 | 0.287 | 0.796 |
| 30.0 | 30.5 | 30.0 | 0.711 | 2.406 | 12.473 | 0.208 | 0.459 | 0.792 |
| 45.0 | 30.5 | 45.0 | 0.675 | 3.177 | 12.553 | 0.185 | 0.639 | 0.774 |
| 60.0 | 30.5 | 60.0 | 0.482 | 3.476 | 12.211 | 0.141 | 0.830 | 0.693 |
| 75.0 | 30.5 | 75.0 | 0.201 | 2.793 | 11.385 | 0.065 | 0.606 | 0.457 |
| 90.0 | 30.5 | 89.9 | 0.135 | 2.897 | 11.171 | 0.037 | 0.615 | 0.303 |
| 105.0 | 30.5 | 104.9 | 0.190 | 3.245 | 10.628 | 0.048 | 0.748 | 0.217 |
| 120.0 | 30.5 | 119.9 | 0.238 | 4.000 | 9.958 | 0.056 | 1.350 | 0.186 |
| 135.0 | 30.5 | 134.9 | 0.255 | 3.809 | 9.938 | 0.054 | 0.867 | 0.106 |
| 150.0 | 30.6 | 149.9 | 0.261 | 2.476 | 9.933 | 0.080 | 0.610 | 0.084 |
| 165.0 | 30.6 | 164.9 | 0.296 | 1.948 | 9.903 | 0.093 | 0.342 | 0.057 |
| 180.0 | 31.0 | 179.9 | 0.331 | 2.231 | 9.883 | 0.093 | 0.222 | 0.043 |
| 195.0 | 30.6 | 194.9 | 0.256 | 2.738 | 9.885 | 0.084 | 0.397 | 0.055 |
| 210.0 | 30.6 | 210.0 | 0.231 | 3.214 | 9.883 | 0.072 | 0.630 | 0.073 |
| 225.0 | 30.5 | 225.0 | 0.166 | 4.072 | 9.892 | 0.047 | 0.886 | 0.102 |
| 240.0 | 30.5 | 240.1 | 0.223 | 6.094 | 9.859 | 0.052 | 1.479 | 0.153 |
| 255.0 | 30.5 | 255.0 | 0.166 | 3.699 | 10.551 | 0.048 | 0.782 | 0.162 |
| 270.0 | 30.5 | 270.0 | 0.141 | 3.172 | 10.895 | 0.040 | 0.688 | 0.293 |
| 285.0 | 30.5 | 285.0 | 0.212 | 3.813 | 11.459 | 0.061 | 0.673 | 0.476 |
| 300.0 | 30.5 | 299.9 | 0.460 | 3.414 | 12.203 | 0.135 | 0.716 | 0.702 |
| 315.0 | 30.5 | 314.9 | 0.600 | 3.095 | 12.449 | 0.181 | 0.531 | 0.776 |
| 330.0 | 30.5 | 329.9 | 0.741 | 2.289 | 12.243 | 0.207 | 0.350 | 0.795 |
| 345.0 | 30.5 | 344.9 | 0.847 | 1.640 | 12.507 | 0.220 | 0.191 | 0.797 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.15: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -18.2 | 1.281 | 3.577 | 11.607 | 0.264 | 0.676 | 0.682 |
| 15.0 | -0.3 | -12.9 | 1.215 | 2.793 | 11.520 | 0.262 | 0.527 | 0.652 |
| 30.0 | -0.6 | -3.0 | 1.179 | 2.623 | 11.349 | 0.258 | 0.476 | 0.626 |
| 45.0 | -0.9 | 7.5 | 1.234 | 3.191 | 11.925 | 0.255 | 0.661 | 0.609 |
| 60.0 | -1.2 | 18.4 | 1.120 | 4.551 | 12.060 | 0.254 | 1.013 | 0.623 |
| 75.0 | -1.6 | -14.9 | 1.144 | 6.866 | 13.595 | 0.252 | 1.561 | 0.718 |
| 90.0 | -1.5 | -5.5 | 0.954 | 10.020 | 14.319 | 0.246 | 1.560 | 0.702 |
| 105.0 | -1.3 | -6.7 | 0.952 | 7.531 | 13.142 | 0.250 | 1.488 | 0.691 |
| 120.0 | -1.3 | 47.4 | 1.203 | 11.600 | 13.344 | 0.194 | 1.691 | 0.732 |
| 135.0 | -3.0 | 105.0 | 0.976 | 9.560 | 14.290 | 0.191 | 1.845 | 0.852 |
| 150.0 | -3.7 | 109.0 | 0.912 | 8.485 | 13.611 | 0.204 | 1.770 | 0.851 |
| 165.0 | -4.0 | 106.1 | 0.953 | 10.055 | 13.495 | 0.202 | 1.782 | 0.861 |
| 180.0 | -0.2 | 328.0 | 1.153 | 4.597 | 12.514 | 0.245 | 0.923 | 0.656 |
| 195.0 | -0.2 | 16.8 | 1.069 | 5.935 | 12.672 | 0.258 | 0.973 | 0.710 |
| 210.0 | -0.2 | 385.8 | 1.025 | 5.616 | 12.302 | 0.258 | 1.078 | 0.739 |
| 225.0 | -0.1 | 392.3 | 1.124 | 5.494 | 12.859 | 0.263 | 1.238 | 0.785 |
| 240.0 | 0.0 | 393.2 | 1.169 | 5.923 | 13.242 | 0.264 | 1.381 | 0.835 |
| 255.0 | 0.0 | 386.6 | 1.031 | 6.136 | 13.985 | 0.261 | 1.564 | 0.894 |
| 270.0 | 0.5 | 300.2 | 1.264 | 6.497 | 14.163 | 0.261 | 1.485 | 0.912 |
| 285.0 | 0.3 | 303.6 | 1.100 | 8.013 | 15.084 | 0.264 | 1.424 | 0.888 |
| 300.0 | -0.0 | 309.2 | 1.270 | 6.575 | 15.282 | 0.271 | 1.366 | 0.853 |
| 315.0 | -0.1 | 315.9 | 1.173 | 6.287 | 12.989 | 0.272 | 1.240 | 0.813 |
| 330.0 | -0.3 | 325.3 | 1.265 | 5.182 | 12.375 | 0.263 | 1.030 | 0.737 |
| 345.0 | -0.1 | 333.7 | 1.231 | 4.757 | 11.909 | 0.264 | 0.822 | 0.708 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.16: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.1 | -10.0 | 1.395 | 4.555 | 11.868 | 0.298 | 0.483 | 0.767 |
| 15.0 | 4.0 | -2.0 | 1.398 | 2.538 | 11.883 | 0.295 | 0.393 | 0.746 |
| 30.0 | 3.9 | 8.0 | 1.264 | 2.400 | 11.742 | 0.293 | 0.461 | 0.738 |
| 45.0 | 3.8 | 19.0 | 1.422 | 3.165 | 11.606 | 0.292 | 0.657 | 0.745 |
| 60.0 | 3.8 | 31.1 | 1.193 | 4.000 | 11.990 | 0.291 | 0.896 | 0.769 |
| 75.0 | 3.7 | 38.8 | 1.380 | 5.002 | 12.746 | 0.290 | 1.069 | 0.795 |
| 90.0 | 3.7 | 46.5 | 1.302 | 7.968 | 13.389 | 0.285 | 1.236 | 0.825 |
| 105.0 | 3.7 | 48.9 | 1.135 | 9.156 | 14.562 | 0.282 | 1.289 | 0.837 |
| 120.0 | 3.7 | 46.7 | 1.857 | 10.601 | 13.488 | 0.286 | 1.284 | 0.839 |
| 135.0 | 3.7 | 43.4 | 1.180 | 5.839 | 13.059 | 0.288 | 1.121 | 0.829 |
| 150.0 | 3.8 | 45.4 | 1.114 | 5.740 | 12.702 | 0.287 | 1.143 | 0.837 |
| 165.0 | 3.8 | 49.5 | 1.158 | 6.180 | 12.898 | 0.289 | 1.122 | 0.835 |
| 180.0 | 4.7 | 178.6 | 0.603 | 2.702 | 11.461 | 0.147 | 0.502 | 0.301 |
| 195.0 | 4.6 | 197.3 | 0.588 | 3.158 | 11.587 | 0.149 | 0.694 | 0.348 |
| 210.0 | 4.1 | 368.4 | 1.344 | 6.578 | 12.706 | 0.290 | 0.939 | 0.795 |
| 225.0 | 4.5 | 295.9 | 1.091 | 8.276 | 14.560 | 0.268 | 1.497 | 0.958 |
| 240.0 | 4.7 | 286.9 | 1.184 | 8.189 | 15.071 | 0.237 | 1.635 | 1.051 |
| 255.0 | 4.5 | 289.3 | 1.208 | 7.931 | 14.543 | 0.247 | 1.640 | 1.052 |
| 270.0 | 4.4 | 292.8 | 1.648 | 6.227 | 15.237 | 0.267 | 1.583 | 1.043 |
| 285.0 | 4.5 | 295.6 | 1.154 | 7.591 | 15.271 | 0.277 | 1.572 | 1.024 |
| 300.0 | 4.7 | 302.6 | 1.152 | 6.824 | 13.730 | 0.295 | 1.389 | 0.968 |
| 315.0 | 4.7 | 314.4 | 1.245 | 5.379 | 12.603 | 0.306 | 1.140 | 0.901 |
| 330.0 | 4.6 | 327.1 | 1.286 | 5.096 | 11.969 | 0.304 | 0.871 | 0.843 |
| 345.0 | 4.4 | 340.0 | 1.333 | 3.355 | 11.989 | 0.301 | 0.623 | 0.799 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.17: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.8 | -1.2 | 1.349 | 2.165 | 12.029 | 0.331 | 0.265 | 0.890 |
| 15.0 | 9.7 | 13.7 | 1.465 | 1.904 | 12.201 | 0.329 | 0.364 | 0.883 |
| 30.0 | 9.7 | 28.7 | 1.359 | 2.665 | 12.160 | 0.331 | 0.652 | 0.907 |
| 45.0 | 9.7 | 43.7 | 1.496 | 4.203 | 12.550 | 0.328 | 0.958 | 0.936 |
| 60.0 | 9.7 | 58.2 | 1.075 | 5.704 | 13.506 | 0.309 | 1.264 | 1.004 |
| 75.0 | 9.7 | 71.6 | 1.613 | 7.696 | 14.927 | 0.257 | 1.467 | 1.105 |
| 90.0 | 9.0 | 81.8 | 0.830 | 9.335 | 14.880 | 0.150 | 1.492 | 1.031 |
| 105.0 | 8.6 | 88.7 | 0.752 | 11.164 | 13.905 | 0.085 | 1.651 | 0.905 |
| 120.0 | 8.4 | 100.7 | 0.758 | 9.499 | 13.538 | 0.106 | 1.713 | 0.761 |
| 135.0 | 8.9 | 125.6 | 0.582 | 7.513 | 12.472 | 0.123 | 1.419 | 0.448 |
| 150.0 | 9.4 | 145.7 | 0.461 | 4.255 | 10.994 | 0.110 | 1.329 | 0.283 |
| 165.0 | 9.6 | 162.0 | 0.394 | 4.146 | 10.634 | 0.105 | 1.246 | 0.240 |
| 180.0 | 9.9 | 178.3 | 0.376 | 3.983 | 10.550 | 0.103 | 0.983 | 0.187 |
| 195.0 | 10.0 | 194.6 | 0.438 | 3.353 | 11.065 | 0.105 | 0.806 | 0.176 |
| 210.0 | 9.8 | 211.5 | 0.431 | 3.593 | 11.152 | 0.112 | 1.227 | 0.252 |
| 225.0 | 9.3 | 231.7 | 0.697 | 7.101 | 12.612 | 0.127 | 1.512 | 0.431 |
| 240.0 | 8.5 | 259.3 | 1.792 | 11.948 | 15.611 | 0.138 | 1.756 | 0.813 |
| 255.0 | 8.6 | 269.8 | 1.299 | 12.240 | 16.826 | 0.104 | 1.691 | 0.946 |
| 270.0 | 9.2 | 277.4 | 0.828 | 8.762 | 15.001 | 0.137 | 1.609 | 1.108 |
| 285.0 | 10.0 | 287.5 | 1.181 | 7.137 | 15.076 | 0.257 | 1.573 | 1.212 |
| 300.0 | 10.0 | 300.3 | 1.083 | 4.566 | 13.494 | 0.313 | 1.371 | 1.071 |
| 315.0 | 9.8 | 314.3 | 1.270 | 5.477 | 12.526 | 0.333 | 1.048 | 0.969 |
| 330.0 | 9.8 | 329.1 | 1.430 | 4.529 | 12.365 | 0.336 | 0.705 | 0.934 |
| 345.0 | 9.8 | 343.9 | 1.366 | 2.496 | 12.372 | 0.333 | 0.424 | 0.893 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.18: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.523 | 1.862 | 12.440 | 0.361 | 0.240 | 0.959 |
| 15.0 | 15.0 | 14.6 | 1.459 | 2.152 | 12.303 | 0.361 | 0.369 | 0.966 |
| 30.0 | 15.0 | 29.6 | 1.444 | 2.659 | 12.614 | 0.363 | 0.616 | 0.997 |
| 45.0 | 15.0 | 44.7 | 1.354 | 3.738 | 12.660 | 0.356 | 0.921 | 1.043 |
| 60.0 | 15.0 | 59.4 | 1.101 | 6.974 | 13.430 | 0.327 | 1.231 | 1.141 |
| 75.0 | 15.1 | 73.7 | 1.099 | 7.965 | 15.228 | 0.253 | 1.357 | 1.237 |
| 90.0 | 14.9 | 87.7 | 0.921 | 7.958 | 14.411 | 0.078 | 1.363 | 0.962 |
| 105.0 | 14.8 | 102.4 | 0.532 | 11.121 | 13.859 | 0.099 | 1.595 | 0.698 |
| 120.0 | 14.6 | 116.8 | 0.515 | 7.919 | 13.053 | 0.089 | 1.779 | 0.519 |
| 135.0 | 15.0 | 133.5 | 0.366 | 5.143 | 11.265 | 0.069 | 1.717 | 0.364 |
| 150.0 | 15.0 | 149.2 | 0.289 | 4.028 | 10.670 | 0.083 | 1.287 | 0.260 |
| 165.0 | 15.0 | 164.1 | 0.372 | 3.691 | 10.646 | 0.091 | 0.753 | 0.188 |
| 180.0 | 15.0 | 179.2 | 0.425 | 3.591 | 10.543 | 0.103 | 0.618 | 0.162 |
| 195.0 | 15.1 | 194.4 | 0.389 | 4.656 | 10.058 | 0.083 | 0.755 | 0.109 |
| 210.0 | 15.1 | 209.7 | 0.464 | 4.547 | 10.796 | 0.077 | 1.211 | 0.120 |
| 225.0 | 15.0 | 226.3 | 0.531 | 6.419 | 11.559 | 0.083 | 1.901 | 0.263 |
| 240.0 | 14.6 | 243.5 | 0.730 | 9.400 | 13.180 | 0.103 | 1.955 | 0.486 |
| 255.0 | 14.5 | 258.6 | 1.237 | 12.655 | 16.760 | 0.116 | 1.814 | 0.717 |
| 270.0 | 14.8 | 272.6 | 0.787 | 8.757 | 14.888 | 0.071 | 1.652 | 1.040 |
| 285.0 | 15.2 | 286.1 | 1.155 | 7.699 | 14.928 | 0.250 | 1.589 | 1.322 |
| 300.0 | 15.1 | 300.0 | 1.341 | 5.444 | 14.857 | 0.328 | 1.331 | 1.203 |
| 315.0 | 15.0 | 314.6 | 1.261 | 3.854 | 12.841 | 0.358 | 0.965 | 1.075 |
| 330.0 | 15.0 | 329.5 | 1.405 | 2.898 | 12.514 | 0.364 | 0.646 | 1.010 |
| 345.0 | 15.0 | 344.5 | 1.500 | 2.289 | 12.385 | 0.363 | 0.373 | 0.971 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.19: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.542 | 1.959 | 13.027 | 0.386 | 0.255 | 1.111 |
| 15.0 | 20.2 | 14.8 | 1.463 | 2.310 | 13.068 | 0.387 | 0.369 | 1.118 |
| 30.0 | 20.2 | 29.9 | 1.537 | 3.472 | 13.157 | 0.388 | 0.607 | 1.167 |
| 45.0 | 20.2 | 44.9 | 1.355 | 4.316 | 13.385 | 0.379 | 0.891 | 1.229 |
| 60.0 | 20.2 | 59.7 | 1.193 | 4.851 | 14.032 | 0.343 | 1.184 | 1.324 |
| 75.0 | 20.3 | 74.2 | 1.146 | 8.139 | 16.048 | 0.253 | 1.312 | 1.348 |
| 90.0 | 20.2 | 88.7 | 0.607 | 8.093 | 14.431 | 0.064 | 1.300 | 0.941 |
| 105.0 | 20.1 | 103.7 | 0.554 | 8.141 | 13.912 | 0.086 | 1.619 | 0.633 |
| 120.0 | 20.2 | 118.8 | 0.313 | 6.600 | 11.805 | 0.067 | 2.171 | 0.500 |
| 135.0 | 20.2 | 134.7 | 0.370 | 4.968 | 10.594 | 0.068 | 1.524 | 0.254 |
| 150.0 | 20.3 | 149.6 | 0.503 | 3.721 | 10.326 | 0.088 | 1.084 | 0.171 |
| 165.0 | 20.1 | 164.5 | 0.605 | 3.826 | 10.268 | 0.100 | 0.644 | 0.142 |
| 180.0 | 20.6 | 179.5 | 0.724 | 4.266 | 10.229 | 0.106 | 0.598 | 0.134 |
| 195.0 | 20.1 | 194.4 | 0.667 | 4.766 | 9.995 | 0.099 | 0.866 | 0.165 |
| 210.0 | 20.2 | 209.9 | 0.692 | 6.170 | 9.971 | 0.091 | 1.351 | 0.212 |
| 225.0 | 20.0 | 225.5 | 0.409 | 6.325 | 10.890 | 0.076 | 2.094 | 0.270 |
| 240.0 | 20.2 | 241.0 | 0.381 | 7.258 | 11.653 | 0.075 | 2.485 | 0.356 |
| 255.0 | 19.9 | 256.9 | 0.488 | 13.364 | 13.851 | 0.100 | 1.957 | 0.618 |
| 270.0 | 20.1 | 271.4 | 0.841 | 10.109 | 14.039 | 0.068 | 1.713 | 1.029 |
| 285.0 | 20.3 | 285.7 | 1.020 | 7.366 | 15.687 | 0.246 | 1.623 | 1.428 |
| 300.0 | 20.3 | 300.0 | 1.218 | 4.513 | 14.135 | 0.339 | 1.314 | 1.384 |
| 315.0 | 20.2 | 314.8 | 1.264 | 3.925 | 13.671 | 0.375 | 0.941 | 1.260 |
| 330.0 | 20.2 | 329.7 | 1.439 | 3.068 | 13.120 | 0.387 | 0.623 | 1.187 |
| 345.0 | 20.2 | 344.8 | 1.513 | 2.232 | 13.093 | 0.387 | 0.369 | 1.127 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.20: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 1.463 | 2.104 | 14.104 | 0.404 | 0.306 | 1.357 |
| 15.0 | 25.4 | 14.9 | 1.403 | 2.635 | 13.881 | 0.405 | 0.396 | 1.366 |
| 30.0 | 25.4 | 29.9 | 1.567 | 3.854 | 14.577 | 0.406 | 0.607 | 1.412 |
| 45.0 | 25.3 | 44.9 | 1.585 | 4.370 | 14.292 | 0.395 | 0.868 | 1.471 |
| 60.0 | 25.3 | 59.8 | 1.289 | 5.848 | 14.774 | 0.355 | 1.163 | 1.527 |
| 75.0 | 25.3 | 74.5 | 0.974 | 8.631 | 15.262 | 0.256 | 1.281 | 1.468 |
| 90.0 | 25.3 | 89.2 | 0.682 | 8.595 | 14.686 | 0.065 | 1.295 | 0.939 |
| 105.0 | 25.2 | 104.2 | 0.484 | 10.606 | 13.398 | 0.086 | 1.909 | 0.597 |
| 120.0 | 25.2 | 119.7 | 0.387 | 7.581 | 10.927 | 0.078 | 2.652 | 0.475 |
| 135.0 | 25.2 | 134.7 | 0.375 | 4.711 | 10.361 | 0.091 | 1.727 | 0.231 |
| 150.0 | 25.1 | 149.8 | 0.768 | 3.979 | 10.242 | 0.119 | 1.089 | 0.171 |
| 165.0 | 25.8 | 164.4 | 0.368 | 3.900 | 9.964 | 0.108 | 0.579 | 0.117 |
| 180.0 | 25.6 | 179.8 | 0.503 | 3.948 | 10.033 | 0.113 | 0.574 | 0.128 |
| 195.0 | 25.7 | 195.1 | 0.402 | 4.184 | 9.996 | 0.105 | 0.770 | 0.149 |
| 210.0 | 25.4 | 210.0 | 0.496 | 4.770 | 9.973 | 0.107 | 1.190 | 0.206 |
| 225.0 | 25.2 | 225.3 | 0.463 | 6.886 | 10.197 | 0.092 | 1.942 | 0.312 |
| 240.0 | 25.2 | 240.5 | 0.453 | 8.187 | 11.492 | 0.074 | 2.699 | 0.385 |
| 255.0 | 25.2 | 255.9 | 0.406 | 9.041 | 12.381 | 0.092 | 2.082 | 0.505 |
| 270.0 | 25.3 | 270.9 | 0.584 | 9.510 | 14.138 | 0.070 | 1.753 | 1.011 |
| 285.0 | 25.4 | 285.5 | 0.991 | 8.457 | 15.328 | 0.245 | 1.641 | 1.551 |
| 300.0 | 25.4 | 300.1 | 1.189 | 4.848 | 14.845 | 0.345 | 1.344 | 1.574 |
| 315.0 | 25.4 | 314.9 | 1.495 | 4.031 | 14.785 | 0.387 | 0.960 | 1.497 |
| 330.0 | 25.4 | 329.9 | 1.400 | 2.969 | 14.677 | 0.401 | 0.634 | 1.433 |
| 345.0 | 25.4 | 344.9 | 1.490 | 2.262 | 13.877 | 0.403 | 0.396 | 1.374 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.21: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 10.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.390 | 2.482 | 15.179 | 0.415 | 0.370 | 1.643 |
| 15.0 | 30.5 | 15.0 | 1.565 | 3.099 | 15.054 | 0.417 | 0.426 | 1.654 |
| 30.0 | 30.5 | 30.0 | 1.476 | 4.805 | 14.953 | 0.418 | 0.617 | 1.697 |
| 45.0 | 30.5 | 44.9 | 1.421 | 5.188 | 15.140 | 0.405 | 0.864 | 1.730 |
| 60.0 | 30.4 | 59.8 | 1.331 | 5.388 | 15.040 | 0.366 | 1.131 | 1.741 |
| 75.0 | 30.4 | 74.6 | 0.898 | 7.222 | 16.126 | 0.259 | 1.234 | 1.591 |
| 90.0 | 30.4 | 89.4 | 0.458 | 8.446 | 14.741 | 0.068 | 1.291 | 0.925 |
| 105.0 | 30.3 | 104.5 | 0.487 | 8.908 | 12.396 | 0.087 | 2.251 | 0.561 |
| 120.0 | 30.1 | 119.7 | 0.556 | 7.543 | 11.528 | 0.124 | 2.981 | 0.511 |
| 135.0 | 30.2 | 135.0 | 0.976 | 5.736 | 10.631 | 0.128 | 1.606 | 0.243 |
| 150.0 | 30.9 | 148.9 | 0.694 | 4.849 | 10.029 | 0.138 | 1.079 | 0.211 |
| 165.0 | 31.3 | 164.3 | 0.573 | 4.319 | 10.174 | 0.137 | 0.739 | 0.193 |
| 180.0 | 30.3 | 179.5 | 0.996 | 5.040 | 10.185 | 0.155 | 0.850 | 0.228 |
| 195.0 | 31.3 | 195.1 | 0.979 | 4.508 | 10.218 | 0.134 | 0.978 | 0.211 |
| 210.0 | 31.0 | 210.7 | 0.802 | 4.554 | 10.106 | 0.125 | 1.259 | 0.176 |
| 225.0 | 30.3 | 225.1 | 0.918 | 6.089 | 10.465 | 0.123 | 1.674 | 0.284 |
| 240.0 | 30.2 | 240.6 | 0.547 | 8.578 | 12.807 | 0.115 | 2.823 | 0.487 |
| 255.0 | 30.3 | 255.5 | 0.496 | 12.188 | 13.302 | 0.094 | 2.409 | 0.483 |
| 270.0 | 30.4 | 270.6 | 0.561 | 9.195 | 13.997 | 0.075 | 1.701 | 0.995 |
| 285.0 | 30.5 | 285.4 | 1.052 | 8.107 | 16.469 | 0.243 | 1.706 | 1.653 |
| 300.0 | 30.5 | 300.1 | 1.135 | 5.299 | 15.424 | 0.350 | 1.403 | 1.780 |
| 315.0 | 30.5 | 315.1 | 1.508 | 4.120 | 16.161 | 0.395 | 1.029 | 1.753 |
| 330.0 | 30.5 | 330.0 | 1.320 | 3.190 | 15.386 | 0.409 | 0.685 | 1.706 |
| 345.0 | 30.5 | 345.0 | 1.483 | 2.520 | 14.937 | 0.413 | 0.458 | 1.659 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.22: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -19.6 | 0.714 | 3.146 | 11.010 | 0.171 | 0.616 | 0.429 |
| 15.0 | -0.4 | -11.2 | 0.730 | 2.432 | 11.050 | 0.173 | 0.498 | 0.417 |
| 30.0 | -0.6 | -1.8 | 0.756 | 2.080 | 10.859 | 0.174 | 0.476 | 0.408 |
| 45.0 | -0.4 | 17.6 | 0.668 | 2.996 | 11.047 | 0.169 | 0.753 | 0.413 |
| 60.0 | -0.1 | 40.8 | 0.596 | 4.185 | 11.374 | 0.149 | 1.064 | 0.436 |
| 75.0 | 0.1 | 57.8 | 0.541 | 4.418 | 11.738 | 0.116 | 1.183 | 0.439 |
| 90.0 | 0.1 | 74.2 | 0.411 | 3.993 | 11.850 | 0.063 | 1.179 | 0.419 |
| 105.0 | -0.2 | 93.6 | 0.202 | 3.993 | 11.648 | 0.023 | 1.194 | 0.403 |
| 120.0 | -0.6 | 104.0 | 0.324 | 5.031 | 11.667 | 0.052 | 1.241 | 0.420 |
| 135.0 | -1.1 | 111.6 | 0.380 | 5.014 | 11.548 | 0.078 | 1.246 | 0.434 |
| 150.0 | -1.5 | 118.3 | 0.487 | 4.576 | 11.501 | 0.100 | 1.223 | 0.440 |
| 165.0 | -1.8 | 124.3 | 0.548 | 3.914 | 11.578 | 0.116 | 1.164 | 0.443 |
| 180.0 | -1.3 | 86.0 | 0.663 | 3.338 | 11.442 | 0.147 | 1.052 | 0.429 |
| 195.0 | 0.0 | 358.1 | 0.652 | 3.489 | 11.511 | 0.152 | 0.967 | 0.442 |
| 210.0 | 0.3 | 252.3 | 0.544 | 4.737 | 11.727 | 0.071 | 1.222 | 0.460 |
| 225.0 | 0.1 | 258.0 | 0.461 | 4.888 | 11.899 | 0.056 | 1.224 | 0.458 |
| 240.0 | 0.0 | 265.7 | 0.304 | 5.362 | 11.799 | 0.035 | 1.202 | 0.448 |
| 255.0 | 0.1 | 275.9 | 0.249 | 5.106 | 11.765 | 0.033 | 1.168 | 0.448 |
| 270.0 | 0.2 | 287.1 | 0.353 | 5.486 | 12.016 | 0.067 | 1.142 | 0.467 |
| 285.0 | 0.2 | 296.8 | 0.399 | 5.239 | 12.033 | 0.102 | 1.115 | 0.482 |
| 300.0 | 0.2 | 305.4 | 0.487 | 4.786 | 11.918 | 0.127 | 1.071 | 0.484 |
| 315.0 | 0.2 | 314.1 | 0.578 | 4.028 | 11.787 | 0.145 | 1.002 | 0.476 |
| 330.0 | 0.1 | 322.8 | 0.688 | 4.522 | 11.544 | 0.158 | 0.898 | 0.462 |
| 345.0 | -0.1 | 331.6 | 0.710 | 4.121 | 11.195 | 0.165 | 0.768 | 0.445 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.23: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.2 | -13.9 | 0.910 | 2.919 | 11.156 | 0.201 | 0.585 | 0.485 |
| 15.0 | 4.1 | -5.4 | 0.875 | 2.379 | 11.089 | 0.202 | 0.501 | 0.478 |
| 30.0 | 4.0 | 5.6 | 0.835 | 2.334 | 11.150 | 0.201 | 0.533 | 0.478 |
| 45.0 | 4.1 | 24.0 | 0.945 | 3.145 | 11.427 | 0.192 | 0.780 | 0.490 |
| 60.0 | 4.2 | 43.6 | 0.654 | 3.862 | 11.671 | 0.167 | 1.036 | 0.508 |
| 75.0 | 4.3 | 58.6 | 0.527 | 4.259 | 11.901 | 0.126 | 1.136 | 0.497 |
| 90.0 | 4.3 | 73.3 | 0.270 | 3.797 | 11.592 | 0.065 | 1.138 | 0.460 |
| 105.0 | 4.3 | 89.5 | 0.153 | 5.054 | 11.771 | 0.017 | 1.144 | 0.427 |
| 120.0 | 4.2 | 100.7 | 0.270 | 4.760 | 11.701 | 0.034 | 1.170 | 0.423 |
| 135.0 | 4.0 | 109.6 | 0.324 | 4.982 | 11.599 | 0.055 | 1.172 | 0.415 |
| 150.0 | 3.9 | 116.9 | 0.482 | 4.295 | 11.412 | 0.071 | 1.156 | 0.404 |
| 165.0 | 3.8 | 128.1 | 0.573 | 4.014 | 11.396 | 0.089 | 1.047 | 0.379 |
| 180.0 | 3.9 | 149.1 | 0.589 | 2.934 | 11.375 | 0.109 | 0.742 | 0.323 |
| 195.0 | 4.7 | 194.1 | 0.595 | 2.694 | 11.421 | 0.112 | 0.624 | 0.272 |
| 210.0 | 4.6 | 213.1 | 0.497 | 3.636 | 11.134 | 0.105 | 0.875 | 0.307 |
| 225.0 | 4.5 | 232.8 | 0.616 | 4.800 | 11.845 | 0.091 | 1.093 | 0.370 |
| 240.0 | 4.5 | 248.1 | 0.408 | 4.942 | 11.635 | 0.065 | 1.182 | 0.408 |
| 255.0 | 4.7 | 260.6 | 0.227 | 4.677 | 11.645 | 0.036 | 1.177 | 0.425 |
| 270.0 | 4.8 | 273.8 | 0.147 | 5.138 | 11.478 | 0.018 | 1.140 | 0.444 |
| 285.0 | 4.9 | 287.5 | 0.321 | 5.511 | 12.028 | 0.070 | 1.114 | 0.488 |
| 300.0 | 4.9 | 300.8 | 0.642 | 4.356 | 12.510 | 0.128 | 1.074 | 0.518 |
| 315.0 | 4.9 | 313.9 | 0.701 | 3.569 | 11.635 | 0.166 | 0.961 | 0.519 |
| 330.0 | 4.7 | 326.7 | 0.834 | 3.645 | 11.521 | 0.187 | 0.805 | 0.509 |
| 345.0 | 4.5 | 338.6 | 0.794 | 3.319 | 11.466 | 0.197 | 0.665 | 0.495 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.24: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.9 | -1.3 | 0.909 | 2.002 | 11.414 | 0.229 | 0.222 | 0.555 |
| 15.0 | 9.9 | 13.8 | 1.073 | 2.242 | 11.631 | 0.226 | 0.419 | 0.559 |
| 30.0 | 9.9 | 28.9 | 0.905 | 2.836 | 11.487 | 0.214 | 0.671 | 0.566 |
| 45.0 | 9.9 | 43.9 | 0.717 | 3.534 | 11.522 | 0.190 | 0.866 | 0.568 |
| 60.0 | 10.0 | 58.7 | 0.469 | 3.869 | 11.951 | 0.142 | 0.987 | 0.548 |
| 75.0 | 10.1 | 73.5 | 0.301 | 4.319 | 11.907 | 0.072 | 0.958 | 0.500 |
| 90.0 | 10.0 | 88.3 | 0.092 | 4.236 | 11.539 | 0.021 | 0.966 | 0.449 |
| 105.0 | 10.0 | 103.2 | 0.180 | 4.712 | 11.609 | 0.034 | 1.024 | 0.417 |
| 120.0 | 9.7 | 117.3 | 0.286 | 5.192 | 11.780 | 0.054 | 1.086 | 0.384 |
| 135.0 | 9.7 | 132.1 | 0.354 | 4.573 | 11.505 | 0.066 | 0.980 | 0.330 |
| 150.0 | 9.7 | 147.6 | 0.330 | 3.773 | 11.026 | 0.075 | 0.937 | 0.273 |
| 165.0 | 9.8 | 163.1 | 0.358 | 3.412 | 10.656 | 0.080 | 0.833 | 0.233 |
| 180.0 | 9.9 | 178.6 | 0.340 | 3.034 | 10.447 | 0.081 | 0.639 | 0.195 |
| 195.0 | 10.0 | 194.3 | 0.385 | 2.903 | 10.530 | 0.082 | 0.646 | 0.168 |
| 210.0 | 9.9 | 210.5 | 0.439 | 3.184 | 11.058 | 0.079 | 0.956 | 0.204 |
| 225.0 | 9.8 | 226.6 | 0.462 | 4.205 | 11.607 | 0.072 | 1.195 | 0.259 |
| 240.0 | 9.8 | 242.1 | 0.338 | 4.160 | 11.846 | 0.061 | 1.305 | 0.328 |
| 255.0 | 10.0 | 256.5 | 0.230 | 4.300 | 11.642 | 0.042 | 1.255 | 0.374 |
| 270.0 | 10.1 | 271.0 | 0.105 | 4.919 | 11.450 | 0.023 | 1.178 | 0.435 |
| 285.0 | 10.1 | 285.5 | 0.306 | 5.164 | 12.153 | 0.064 | 1.116 | 0.501 |
| 300.0 | 10.1 | 300.0 | 0.564 | 4.683 | 12.157 | 0.137 | 1.061 | 0.555 |
| 315.0 | 10.0 | 314.3 | 0.711 | 3.562 | 11.697 | 0.187 | 0.879 | 0.562 |
| 330.0 | 9.9 | 329.0 | 0.814 | 2.855 | 11.487 | 0.213 | 0.645 | 0.559 |
| 345.0 | 9.9 | 343.8 | 0.963 | 2.556 | 11.441 | 0.224 | 0.392 | 0.552 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.25: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.1 | -0.5 | 0.885 | 1.548 | 11.317 | 0.253 | 0.192 | 0.611 |
| 15.0 | 15.1 | 14.6 | 0.987 | 2.141 | 11.557 | 0.250 | 0.404 | 0.614 |
| 30.0 | 15.1 | 29.7 | 0.857 | 2.958 | 11.919 | 0.236 | 0.667 | 0.624 |
| 45.0 | 15.1 | 44.7 | 0.782 | 3.624 | 12.199 | 0.208 | 0.877 | 0.626 |
| 60.0 | 15.1 | 59.5 | 0.523 | 4.230 | 12.188 | 0.152 | 1.021 | 0.597 |
| 75.0 | 15.2 | 74.4 | 0.307 | 4.160 | 12.309 | 0.073 | 0.898 | 0.524 |
| 90.0 | 15.2 | 89.3 | 0.117 | 4.090 | 11.783 | 0.030 | 0.885 | 0.452 |
| 105.0 | 15.2 | 104.2 | 0.215 | 4.605 | 11.869 | 0.040 | 0.961 | 0.399 |
| 120.0 | 15.1 | 118.8 | 0.288 | 5.471 | 11.573 | 0.052 | 1.249 | 0.386 |
| 135.0 | 15.0 | 134.0 | 0.342 | 4.972 | 11.217 | 0.061 | 1.255 | 0.323 |
| 150.0 | 15.1 | 149.3 | 0.286 | 3.508 | 10.642 | 0.062 | 0.873 | 0.243 |
| 165.0 | 15.2 | 164.4 | 0.236 | 2.541 | 10.341 | 0.057 | 0.450 | 0.178 |
| 180.0 | 15.1 | 179.4 | 0.273 | 2.262 | 10.288 | 0.064 | 0.399 | 0.153 |
| 195.0 | 15.1 | 194.6 | 0.302 | 3.785 | 10.090 | 0.066 | 0.610 | 0.126 |
| 210.0 | 15.1 | 209.9 | 0.298 | 4.238 | 10.066 | 0.060 | 0.985 | 0.118 |
| 225.0 | 15.1 | 225.6 | 0.351 | 4.696 | 10.875 | 0.063 | 1.505 | 0.184 |
| 240.0 | 15.1 | 241.0 | 0.376 | 4.876 | 11.508 | 0.056 | 1.531 | 0.273 |
| 255.0 | 15.2 | 255.6 | 0.255 | 4.935 | 11.498 | 0.045 | 1.343 | 0.328 |
| 270.0 | 15.2 | 270.4 | 0.147 | 4.951 | 11.487 | 0.033 | 1.224 | 0.424 |
| 285.0 | 15.2 | 285.2 | 0.249 | 5.171 | 11.853 | 0.066 | 1.149 | 0.521 |
| 300.0 | 15.2 | 299.8 | 0.520 | 4.932 | 12.147 | 0.147 | 1.080 | 0.604 |
| 315.0 | 15.1 | 314.5 | 0.705 | 3.702 | 12.063 | 0.205 | 0.853 | 0.620 |
| 330.0 | 15.1 | 329.4 | 0.911 | 3.072 | 11.747 | 0.235 | 0.601 | 0.614 |
| 345.0 | 15.1 | 344.4 | 1.058 | 1.939 | 11.647 | 0.249 | 0.336 | 0.608 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.26: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.158 | 1.773 | 11.737 | 0.275 | 0.222 | 0.708 |
| 15.0 | 20.2 | 14.9 | 1.047 | 2.324 | 11.965 | 0.271 | 0.437 | 0.709 |
| 30.0 | 20.2 | 29.9 | 0.992 | 3.239 | 12.029 | 0.256 | 0.691 | 0.723 |
| 45.0 | 20.3 | 44.9 | 0.810 | 3.785 | 12.347 | 0.224 | 0.912 | 0.722 |
| 60.0 | 20.3 | 59.8 | 0.561 | 4.721 | 12.233 | 0.162 | 1.094 | 0.663 |
| 75.0 | 20.3 | 74.7 | 0.291 | 3.790 | 12.020 | 0.077 | 0.873 | 0.552 |
| 90.0 | 20.3 | 89.6 | 0.154 | 3.880 | 11.792 | 0.040 | 0.843 | 0.449 |
| 105.0 | 20.3 | 104.6 | 0.222 | 4.745 | 11.563 | 0.049 | 0.930 | 0.375 |
| 120.0 | 20.3 | 119.4 | 0.286 | 5.253 | 10.989 | 0.061 | 1.590 | 0.385 |
| 135.0 | 20.2 | 134.7 | 0.264 | 4.141 | 10.356 | 0.066 | 1.416 | 0.277 |
| 150.0 | 20.2 | 149.6 | 0.352 | 3.298 | 10.503 | 0.079 | 0.945 | 0.211 |
| 165.0 | 20.3 | 164.7 | 0.318 | 2.449 | 10.316 | 0.072 | 0.447 | 0.151 |
| 180.0 | 20.3 | 179.7 | 0.368 | 2.814 | 10.195 | 0.078 | 0.364 | 0.126 |
| 195.0 | 20.3 | 194.8 | 0.357 | 4.796 | 10.091 | 0.075 | 0.673 | 0.125 |
| 210.0 | 20.2 | 210.0 | 0.269 | 5.419 | 10.014 | 0.070 | 1.140 | 0.149 |
| 225.0 | 20.3 | 224.9 | 0.252 | 5.905 | 9.971 | 0.053 | 1.291 | 0.157 |
| 240.0 | 20.3 | 240.5 | 0.349 | 6.151 | 10.731 | 0.061 | 1.846 | 0.219 |
| 255.0 | 20.3 | 255.3 | 0.320 | 5.249 | 11.637 | 0.052 | 1.357 | 0.289 |
| 270.0 | 20.3 | 270.2 | 0.157 | 5.170 | 11.500 | 0.042 | 1.229 | 0.414 |
| 285.0 | 20.3 | 285.1 | 0.269 | 4.782 | 11.883 | 0.069 | 1.148 | 0.544 |
| 300.0 | 20.3 | 299.8 | 0.569 | 6.112 | 12.468 | 0.156 | 1.079 | 0.674 |
| 315.0 | 20.3 | 314.7 | 0.871 | 4.053 | 12.099 | 0.220 | 0.834 | 0.720 |
| 330.0 | 20.2 | 329.6 | 0.958 | 3.149 | 11.985 | 0.253 | 0.573 | 0.718 |
| 345.0 | 20.2 | 344.7 | 1.172 | 2.239 | 11.943 | 0.270 | 0.305 | 0.707 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.27: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.1 | 1.219 | 2.121 | 12.344 | 0.294 | 0.275 | 0.873 |
| 15.0 | 25.3 | 15.0 | 1.119 | 2.532 | 12.478 | 0.288 | 0.468 | 0.871 |
| 30.0 | 25.3 | 30.0 | 1.037 | 3.353 | 12.366 | 0.273 | 0.714 | 0.878 |
| 45.0 | 25.4 | 45.0 | 0.869 | 4.233 | 12.770 | 0.240 | 0.945 | 0.864 |
| 60.0 | 25.4 | 60.0 | 0.582 | 4.827 | 12.972 | 0.174 | 1.141 | 0.765 |
| 75.0 | 25.4 | 74.8 | 0.322 | 4.576 | 12.728 | 0.081 | 0.874 | 0.576 |
| 90.0 | 25.4 | 89.7 | 0.190 | 3.674 | 11.752 | 0.048 | 0.844 | 0.443 |
| 105.0 | 25.4 | 104.8 | 0.275 | 4.581 | 11.563 | 0.062 | 0.933 | 0.350 |
| 120.0 | 25.3 | 119.8 | 0.374 | 6.309 | 10.599 | 0.075 | 1.853 | 0.360 |
| 135.0 | 25.3 | 134.8 | 0.271 | 4.169 | 10.103 | 0.082 | 1.344 | 0.222 |
| 150.0 | 25.4 | 149.7 | 0.353 | 3.883 | 10.045 | 0.086 | 0.909 | 0.161 |
| 165.0 | 25.6 | 164.8 | 0.279 | 2.408 | 10.027 | 0.080 | 0.418 | 0.100 |
| 180.0 | 25.6 | 179.8 | 0.364 | 2.634 | 10.139 | 0.109 | 0.315 | 0.119 |
| 195.0 | 25.6 | 195.0 | 0.251 | 3.027 | 9.968 | 0.069 | 0.418 | 0.078 |
| 210.0 | 25.4 | 210.1 | 0.328 | 5.219 | 10.044 | 0.091 | 1.124 | 0.208 |
| 225.0 | 25.3 | 225.2 | 0.289 | 6.987 | 9.919 | 0.078 | 1.635 | 0.267 |
| 240.0 | 25.4 | 240.2 | 0.273 | 7.291 | 9.948 | 0.064 | 1.800 | 0.194 |
| 255.0 | 25.4 | 255.1 | 0.313 | 6.900 | 10.895 | 0.061 | 1.308 | 0.258 |
| 270.0 | 25.4 | 270.1 | 0.187 | 4.896 | 11.544 | 0.050 | 1.188 | 0.405 |
| 285.0 | 25.4 | 285.0 | 0.287 | 5.953 | 12.053 | 0.073 | 1.136 | 0.576 |
| 300.0 | 25.4 | 299.8 | 0.547 | 5.576 | 12.437 | 0.166 | 1.056 | 0.775 |
| 315.0 | 25.4 | 314.8 | 0.878 | 4.293 | 12.659 | 0.233 | 0.799 | 0.866 |
| 330.0 | 25.3 | 329.8 | 1.017 | 3.103 | 12.566 | 0.270 | 0.532 | 0.875 |
| 345.0 | 25.3 | 344.8 | 1.258 | 2.322 | 12.515 | 0.288 | 0.304 | 0.869 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.28: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 6.0$ m and $T_p = 16.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.252 | 2.673 | 13.115 | 0.310 | 0.334 | 1.085 |
| 15.0 | 30.5 | 15.0 | 1.203 | 3.076 | 13.207 | 0.304 | 0.502 | 1.079 |
| 30.0 | 30.5 | 30.1 | 1.196 | 3.775 | 13.405 | 0.287 | 0.722 | 1.072 |
| 45.0 | 30.5 | 45.1 | 0.935 | 3.977 | 13.809 | 0.252 | 0.959 | 1.035 |
| 60.0 | 30.4 | 60.0 | 0.655 | 5.453 | 13.027 | 0.185 | 1.193 | 0.892 |
| 75.0 | 30.5 | 74.9 | 0.276 | 4.202 | 12.300 | 0.086 | 0.882 | 0.607 |
| 90.0 | 30.5 | 89.8 | 0.224 | 3.670 | 11.623 | 0.057 | 0.883 | 0.435 |
| 105.0 | 30.5 | 104.8 | 0.306 | 4.128 | 11.038 | 0.075 | 1.022 | 0.326 |
| 120.0 | 30.4 | 119.9 | 0.361 | 6.267 | 10.088 | 0.095 | 2.098 | 0.342 |
| 135.0 | 30.4 | 134.8 | 0.447 | 5.333 | 9.988 | 0.119 | 1.584 | 0.227 |
| 150.0 | 30.8 | 149.6 | 0.388 | 3.431 | 10.028 | 0.110 | 0.787 | 0.140 |
| 165.0 | 30.8 | 164.7 | 0.624 | 2.698 | 9.981 | 0.135 | 0.488 | 0.103 |
| 180.0 | 30.5 | 179.7 | 0.407 | 3.876 | 9.916 | 0.142 | 0.456 | 0.105 |
| 195.0 | 30.9 | 195.0 | 0.445 | 3.792 | 9.916 | 0.127 | 0.599 | 0.109 |
| 210.0 | 30.7 | 210.1 | 0.363 | 3.878 | 9.951 | 0.096 | 0.873 | 0.132 |
| 225.0 | 30.4 | 225.1 | 0.287 | 5.657 | 9.991 | 0.091 | 1.422 | 0.265 |
| 240.0 | 30.4 | 240.1 | 0.289 | 6.553 | 9.924 | 0.073 | 1.742 | 0.249 |
| 255.0 | 30.5 | 255.1 | 0.281 | 6.656 | 10.967 | 0.072 | 1.213 | 0.237 |
| 270.0 | 30.5 | 270.0 | 0.229 | 4.892 | 11.489 | 0.059 | 1.088 | 0.399 |
| 285.0 | 30.5 | 285.0 | 0.299 | 5.630 | 11.788 | 0.077 | 1.081 | 0.613 |
| 300.0 | 30.5 | 299.9 | 0.604 | 5.246 | 12.639 | 0.175 | 1.021 | 0.898 |
| 315.0 | 30.5 | 314.9 | 0.888 | 4.314 | 13.228 | 0.244 | 0.777 | 1.029 |
| 330.0 | 30.5 | 329.9 | 1.147 | 3.199 | 13.258 | 0.282 | 0.531 | 1.066 |
| 345.0 | 30.5 | 344.9 | 1.161 | 2.521 | 13.141 | 0.304 | 0.348 | 1.076 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.29: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.0 | -32.0 | 1.464 | 7.095 | 13.701 | 0.325 | 1.401 | 0.871 |
| 15.0 | -1.6 | -24.8 | 1.755 | 7.661 | 13.348 | 0.324 | 1.336 | 0.840 |
| 30.0 | -3.1 | -86.6 | 1.517 | 13.479 | 13.859 | 0.283 | 2.061 | 0.965 |
| 45.0 | -3.0 | -71.3 | 1.285 | 9.732 | 13.772 | 0.262 | 2.152 | 0.947 |
| 60.0 | -2.5 | -84.7 | 1.290 | 9.133 | 15.108 | 0.210 | 2.261 | 0.974 |
| 75.0 | -0.5 | -74.5 | 1.385 | 10.702 | 14.394 | 0.163 | 2.162 | 0.926 |
| 90.0 | 0.2 | 62.4 | 1.448 | 10.831 | 14.900 | 0.256 | 1.968 | 0.941 |
| 105.0 | 0.3 | 87.5 | 1.005 | 9.727 | 14.785 | 0.116 | 2.073 | 0.924 |
| 120.0 | -2.6 | 104.1 | 0.934 | 9.807 | 15.043 | 0.171 | 2.243 | 0.981 |
| 135.0 | -3.6 | 108.0 | 0.937 | 11.361 | 13.897 | 0.193 | 2.223 | 0.991 |
| 150.0 | -4.1 | 81.2 | 1.675 | 8.762 | 14.606 | 0.245 | 2.243 | 0.973 |
| 165.0 | -2.9 | 44.8 | 1.851 | 11.132 | 14.690 | 0.293 | 1.877 | 0.881 |
| 180.0 | -1.0 | 11.2 | 1.610 | 6.446 | 14.228 | 0.318 | 1.505 | 0.860 |
| 195.0 | -0.3 | 31.9 | 1.489 | 9.206 | 13.916 | 0.321 | 1.622 | 0.923 |
| 210.0 | 0.2 | 39.3 | 1.315 | 9.495 | 15.002 | 0.319 | 1.742 | 0.968 |
| 225.0 | 0.4 | 273.9 | 1.030 | 13.012 | 15.214 | 0.145 | 2.201 | 0.966 |
| 240.0 | -0.1 | 274.4 | 1.231 | 14.125 | 16.588 | 0.125 | 2.197 | 0.956 |
| 255.0 | 0.5 | 282.3 | 1.185 | 12.772 | 14.651 | 0.177 | 2.107 | 1.002 |
| 270.0 | 0.7 | 288.3 | 1.310 | 10.727 | 15.194 | 0.227 | 2.054 | 1.037 |
| 285.0 | 0.7 | 294.8 | 1.330 | 8.377 | 15.847 | 0.274 | 1.950 | 1.037 |
| 300.0 | 0.5 | 299.8 | 1.340 | 10.201 | 15.114 | 0.295 | 1.870 | 1.028 |
| 315.0 | 0.5 | 306.0 | 1.373 | 9.767 | 14.617 | 0.316 | 1.791 | 1.008 |
| 330.0 | 0.2 | 311.9 | 1.302 | 8.541 | 14.282 | 0.323 | 1.717 | 0.978 |
| 345.0 | -0.0 | 319.7 | 1.532 | 8.041 | 14.731 | 0.331 | 1.533 | 0.937 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.30: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.6 | -32.7 | 1.451 | 7.598 | 13.262 | 0.371 | 1.471 | 0.997 |
| 15.0 | 3.4 | -24.6 | 1.604 | 6.312 | 12.753 | 0.374 | 1.340 | 0.971 |
| 30.0 | 3.3 | -17.7 | 1.664 | 5.688 | 12.672 | 0.378 | 1.264 | 0.958 |
| 45.0 | 3.1 | -10.1 | 1.686 | 5.016 | 12.369 | 0.376 | 1.241 | 0.944 |
| 60.0 | 3.1 | -0.1 | 2.170 | 5.187 | 12.605 | 0.372 | 1.245 | 0.936 |
| 75.0 | 3.2 | 11.7 | 1.690 | 7.389 | 13.864 | 0.357 | 1.424 | 0.941 |
| 90.0 | 3.5 | 35.9 | 1.437 | 8.413 | 15.586 | 0.328 | 1.743 | 0.987 |
| 105.0 | 3.3 | 33.0 | 1.560 | 10.095 | 14.373 | 0.335 | 1.700 | 0.974 |
| 120.0 | 3.7 | 64.9 | 1.582 | 11.055 | 14.977 | 0.247 | 1.948 | 0.983 |
| 135.0 | 3.2 | 33.9 | 1.667 | 12.792 | 14.645 | 0.344 | 1.609 | 0.976 |
| 150.0 | 3.3 | 43.2 | 2.669 | 11.837 | 15.098 | 0.339 | 1.674 | 0.975 |
| 165.0 | 3.4 | 43.8 | 1.582 | 8.491 | 14.106 | 0.348 | 1.599 | 0.986 |
| 180.0 | 3.8 | 96.3 | 1.418 | 8.680 | 14.325 | 0.307 | 1.767 | 0.841 |
| 195.0 | 3.9 | 15.4 | 1.442 | 7.502 | 13.643 | 0.348 | 1.721 | 0.987 |
| 210.0 | 4.1 | 30.3 | 1.520 | 9.237 | 14.793 | 0.346 | 1.758 | 1.022 |
| 225.0 | 4.5 | 276.9 | 1.405 | 12.915 | 16.590 | 0.151 | 2.201 | 1.013 |
| 240.0 | 4.4 | 278.6 | 0.929 | 15.094 | 14.726 | 0.151 | 2.150 | 1.030 |
| 255.0 | 4.3 | 282.7 | 1.465 | 11.548 | 16.777 | 0.179 | 2.160 | 1.065 |
| 270.0 | 4.4 | 288.0 | 1.254 | 9.562 | 15.465 | 0.234 | 2.063 | 1.109 |
| 285.0 | 4.5 | 293.0 | 2.251 | 9.927 | 15.741 | 0.285 | 1.954 | 1.119 |
| 300.0 | 4.6 | 300.8 | 1.727 | 8.471 | 15.727 | 0.324 | 1.838 | 1.090 |
| 315.0 | 4.4 | 308.9 | 1.381 | 8.923 | 14.658 | 0.343 | 1.778 | 1.050 |
| 330.0 | 4.1 | 315.7 | 1.487 | 9.356 | 14.057 | 0.358 | 1.648 | 1.042 |
| 345.0 | 3.9 | 321.6 | 1.520 | 8.128 | 13.367 | 0.367 | 1.571 | 1.018 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.31: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 8.9 | -5.5 | 1.924 | 4.589 | 12.944 | 0.436 | 0.779 | 1.081 |
| 15.0 | 8.6 | 8.2 | 2.362 | 4.298 | 13.108 | 0.430 | 0.862 | 1.076 |
| 30.0 | 8.9 | 25.0 | 2.171 | 4.905 | 12.972 | 0.417 | 1.138 | 1.091 |
| 45.0 | 9.1 | 41.0 | 1.489 | 5.844 | 12.679 | 0.388 | 1.466 | 1.114 |
| 60.0 | 9.3 | 56.0 | 1.185 | 8.238 | 14.877 | 0.343 | 1.720 | 1.159 |
| 75.0 | 9.6 | 70.8 | 1.803 | 8.692 | 16.866 | 0.251 | 1.809 | 1.166 |
| 90.0 | 9.2 | 82.7 | 0.787 | 8.297 | 15.386 | 0.116 | 1.878 | 1.065 |
| 105.0 | 8.9 | 94.7 | 0.650 | 14.801 | 14.500 | 0.075 | 1.977 | 0.961 |
| 120.0 | 8.4 | 107.6 | 0.708 | 12.181 | 14.775 | 0.121 | 1.966 | 0.887 |
| 135.0 | 8.3 | 120.1 | 0.802 | 9.497 | 13.780 | 0.141 | 1.808 | 0.762 |
| 150.0 | 8.3 | 135.6 | 0.856 | 7.494 | 13.585 | 0.150 | 1.608 | 0.601 |
| 165.0 | 8.6 | 154.1 | 0.727 | 6.479 | 12.508 | 0.151 | 1.493 | 0.463 |
| 180.0 | 9.4 | 176.8 | 0.967 | 5.684 | 11.658 | 0.148 | 1.266 | 0.309 |
| 195.0 | 9.5 | 196.0 | 1.391 | 7.318 | 12.357 | 0.157 | 1.258 | 0.304 |
| 210.0 | 9.0 | 219.7 | 1.008 | 8.921 | 12.763 | 0.165 | 1.738 | 0.455 |
| 225.0 | 8.3 | 253.8 | 1.369 | 20.490 | 13.974 | 0.144 | 2.302 | 0.840 |
| 240.0 | 8.4 | 263.7 | 1.126 | 20.699 | 14.155 | 0.113 | 2.335 | 0.933 |
| 255.0 | 8.6 | 271.4 | 1.082 | 14.777 | 16.062 | 0.106 | 2.268 | 1.003 |
| 270.0 | 8.9 | 278.8 | 1.839 | 13.512 | 15.591 | 0.141 | 2.220 | 1.104 |
| 285.0 | 9.7 | 288.4 | 1.285 | 9.553 | 15.167 | 0.244 | 2.127 | 1.195 |
| 300.0 | 9.8 | 300.2 | 1.654 | 8.734 | 16.341 | 0.342 | 1.848 | 1.182 |
| 315.0 | 9.6 | 313.2 | 1.565 | 6.786 | 13.872 | 0.387 | 1.515 | 1.113 |
| 330.0 | 9.4 | 326.9 | 2.068 | 6.227 | 13.689 | 0.414 | 1.244 | 1.091 |
| 345.0 | 9.1 | 340.6 | 1.820 | 6.969 | 12.647 | 0.431 | 0.973 | 1.092 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.32: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.7 | -1.3 | 2.047 | 3.772 | 13.125 | 0.475 | 0.566 | 1.210 |
| 15.0 | 14.7 | 13.9 | 1.947 | 3.600 | 12.929 | 0.471 | 0.752 | 1.201 |
| 30.0 | 14.7 | 29.1 | 1.725 | 4.551 | 12.990 | 0.453 | 1.075 | 1.222 |
| 45.0 | 14.8 | 44.3 | 1.641 | 6.763 | 13.448 | 0.417 | 1.384 | 1.227 |
| 60.0 | 14.9 | 58.9 | 1.304 | 8.164 | 14.583 | 0.359 | 1.673 | 1.299 |
| 75.0 | 15.0 | 73.3 | 0.992 | 8.569 | 15.527 | 0.234 | 1.694 | 1.250 |
| 90.0 | 14.9 | 87.8 | 0.490 | 9.295 | 15.177 | 0.073 | 1.734 | 1.032 |
| 105.0 | 14.9 | 102.9 | 0.736 | 17.297 | 14.129 | 0.095 | 1.882 | 0.861 |
| 120.0 | 14.4 | 116.4 | 0.579 | 7.548 | 13.111 | 0.108 | 1.892 | 0.745 |
| 135.0 | 14.4 | 131.7 | 0.630 | 7.282 | 12.632 | 0.108 | 1.869 | 0.606 |
| 150.0 | 15.1 | 148.7 | 0.716 | 5.482 | 11.843 | 0.116 | 1.416 | 0.407 |
| 165.0 | 15.0 | 163.5 | 0.640 | 4.566 | 11.137 | 0.109 | 0.892 | 0.321 |
| 180.0 | 14.7 | 178.5 | 0.593 | 5.203 | 10.755 | 0.122 | 0.900 | 0.269 |
| 195.0 | 14.7 | 194.2 | 0.853 | 5.969 | 11.574 | 0.124 | 1.135 | 0.213 |
| 210.0 | 15.0 | 209.9 | 0.658 | 6.045 | 11.064 | 0.110 | 1.487 | 0.210 |
| 225.0 | 14.4 | 229.8 | 1.626 | 15.557 | 12.997 | 0.135 | 2.324 | 0.493 |
| 240.0 | 14.0 | 247.1 | 0.943 | 15.774 | 13.368 | 0.130 | 2.495 | 0.681 |
| 255.0 | 14.2 | 260.4 | 0.915 | 21.577 | 14.685 | 0.114 | 2.478 | 0.828 |
| 270.0 | 14.6 | 273.5 | 0.806 | 14.179 | 15.341 | 0.090 | 2.336 | 1.057 |
| 285.0 | 15.0 | 286.7 | 1.276 | 12.503 | 15.718 | 0.232 | 2.238 | 1.272 |
| 300.0 | 15.0 | 300.0 | 1.459 | 7.414 | 15.566 | 0.352 | 1.881 | 1.297 |
| 315.0 | 14.9 | 314.0 | 1.772 | 5.139 | 14.453 | 0.416 | 1.415 | 1.226 |
| 330.0 | 14.8 | 328.7 | 1.754 | 4.496 | 13.082 | 0.450 | 1.020 | 1.210 |
| 345.0 | 14.7 | 343.6 | 2.126 | 3.844 | 13.462 | 0.469 | 0.716 | 1.205 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.33: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.0 | -0.5 | 2.408 | 3.183 | 13.856 | 0.507 | 0.560 | 1.390 |
| 15.0 | 20.0 | 14.6 | 1.964 | 3.824 | 13.323 | 0.500 | 0.766 | 1.386 |
| 30.0 | 20.0 | 29.8 | 1.912 | 5.079 | 13.708 | 0.480 | 1.071 | 1.396 |
| 45.0 | 20.0 | 44.8 | 1.733 | 6.096 | 14.521 | 0.443 | 1.369 | 1.407 |
| 60.0 | 20.1 | 59.5 | 1.507 | 9.557 | 15.352 | 0.376 | 1.655 | 1.460 |
| 75.0 | 20.2 | 74.0 | 1.204 | 9.449 | 17.022 | 0.235 | 1.676 | 1.331 |
| 90.0 | 20.1 | 88.7 | 0.404 | 9.289 | 14.986 | 0.077 | 1.686 | 1.024 |
| 105.0 | 20.1 | 104.0 | 0.829 | 10.754 | 14.190 | 0.099 | 1.945 | 0.790 |
| 120.0 | 19.9 | 118.4 | 0.575 | 7.582 | 13.029 | 0.108 | 2.343 | 0.724 |
| 135.0 | 19.9 | 134.3 | 0.989 | 8.093 | 13.289 | 0.123 | 2.231 | 0.512 |
| 150.0 | 19.9 | 149.2 | 0.715 | 5.245 | 11.234 | 0.133 | 1.333 | 0.329 |
| 165.0 | 20.0 | 164.1 | 0.679 | 4.443 | 10.998 | 0.143 | 0.912 | 0.281 |
| 180.0 | 20.3 | 179.2 | 0.983 | 4.664 | 11.060 | 0.154 | 0.795 | 0.240 |
| 195.0 | 20.2 | 194.7 | 0.679 | 6.023 | 10.202 | 0.134 | 1.122 | 0.256 |
| 210.0 | 20.1 | 210.1 | 0.576 | 7.012 | 10.151 | 0.110 | 1.663 | 0.343 |
| 225.0 | 20.0 | 225.4 | 0.718 | 8.282 | 12.230 | 0.102 | 2.202 | 0.360 |
| 240.0 | 19.8 | 242.3 | 0.874 | 9.684 | 13.580 | 0.124 | 2.794 | 0.523 |
| 255.0 | 19.8 | 257.5 | 0.635 | 18.410 | 13.424 | 0.119 | 2.625 | 0.696 |
| 270.0 | 20.0 | 271.9 | 0.721 | 13.334 | 14.533 | 0.088 | 2.420 | 1.025 |
| 285.0 | 20.2 | 286.0 | 1.224 | 11.687 | 15.951 | 0.228 | 2.304 | 1.359 |
| 300.0 | 20.2 | 299.9 | 1.347 | 8.995 | 15.361 | 0.368 | 1.900 | 1.488 |
| 315.0 | 20.1 | 314.4 | 1.649 | 5.795 | 14.105 | 0.438 | 1.368 | 1.422 |
| 330.0 | 20.1 | 329.3 | 2.027 | 4.182 | 13.936 | 0.478 | 0.984 | 1.406 |
| 345.0 | 20.0 | 344.3 | 1.940 | 3.601 | 13.671 | 0.496 | 0.703 | 1.390 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.34: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 2.083 | 3.626 | 14.746 | 0.528 | 0.638 | 1.671 |
| 15.0 | 25.2 | 14.9 | 1.994 | 4.789 | 14.713 | 0.528 | 0.791 | 1.665 |
| 30.0 | 25.2 | 30.0 | 2.087 | 5.698 | 14.686 | 0.504 | 1.096 | 1.663 |
| 45.0 | 25.2 | 45.0 | 1.933 | 6.966 | 14.824 | 0.465 | 1.362 | 1.661 |
| 60.0 | 25.2 | 59.7 | 1.367 | 7.708 | 16.383 | 0.390 | 1.631 | 1.657 |
| 75.0 | 25.2 | 74.3 | 0.974 | 9.274 | 16.449 | 0.241 | 1.667 | 1.429 |
| 90.0 | 25.2 | 89.1 | 0.606 | 8.981 | 14.879 | 0.087 | 1.720 | 1.015 |
| 105.0 | 25.2 | 104.4 | 0.423 | 8.256 | 12.773 | 0.105 | 2.086 | 0.713 |
| 120.0 | 25.0 | 119.4 | 0.916 | 10.427 | 12.327 | 0.131 | 2.969 | 0.700 |
| 135.0 | 24.9 | 134.0 | 0.792 | 7.216 | 12.065 | 0.148 | 2.142 | 0.424 |
| 150.0 | 25.1 | 149.2 | 0.815 | 6.492 | 11.038 | 0.163 | 1.407 | 0.306 |
| 165.0 | 25.7 | 164.2 | 0.739 | 4.607 | 10.282 | 0.152 | 0.864 | 0.230 |
| 180.0 | 26.2 | 179.6 | 0.646 | 4.412 | 10.173 | 0.167 | 0.685 | 0.195 |
| 195.0 | 25.8 | 195.0 | 0.728 | 4.859 | 10.046 | 0.142 | 0.895 | 0.216 |
| 210.0 | 25.2 | 209.9 | 0.574 | 6.147 | 10.193 | 0.141 | 1.412 | 0.320 |
| 225.0 | 25.0 | 225.4 | 0.639 | 7.857 | 10.346 | 0.116 | 2.254 | 0.459 |
| 240.0 | 25.0 | 240.5 | 0.739 | 10.409 | 12.883 | 0.128 | 3.243 | 0.559 |
| 255.0 | 25.0 | 256.3 | 0.676 | 13.678 | 14.196 | 0.121 | 2.708 | 0.595 |
| 270.0 | 25.1 | 271.1 | 0.772 | 14.374 | 14.951 | 0.100 | 2.502 | 0.983 |
| 285.0 | 25.3 | 285.7 | 0.995 | 11.894 | 15.892 | 0.230 | 2.386 | 1.465 |
| 300.0 | 25.3 | 300.0 | 1.267 | 7.282 | 15.742 | 0.377 | 1.919 | 1.670 |
| 315.0 | 25.3 | 314.7 | 1.760 | 5.411 | 15.469 | 0.454 | 1.409 | 1.672 |
| 330.0 | 25.3 | 329.6 | 2.002 | 4.306 | 14.616 | 0.497 | 0.988 | 1.681 |
| 345.0 | 25.2 | 344.7 | 1.949 | 3.806 | 14.829 | 0.521 | 0.729 | 1.678 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.35: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 13.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.0 | 1.892 | 4.436 | 15.874 | 0.540 | 0.737 | 2.002 |
| 15.0 | 30.4 | 15.1 | 2.106 | 5.187 | 15.824 | 0.540 | 0.882 | 1.991 |
| 30.0 | 30.4 | 30.1 | 1.799 | 6.626 | 15.960 | 0.518 | 1.134 | 1.973 |
| 45.0 | 30.4 | 45.0 | 2.029 | 8.527 | 16.521 | 0.479 | 1.384 | 1.928 |
| 60.0 | 30.3 | 59.8 | 1.420 | 6.944 | 16.395 | 0.404 | 1.611 | 1.870 |
| 75.0 | 30.3 | 74.5 | 1.098 | 9.573 | 17.419 | 0.248 | 1.673 | 1.532 |
| 90.0 | 30.3 | 89.3 | 0.901 | 10.728 | 15.483 | 0.100 | 1.831 | 1.005 |
| 105.0 | 30.2 | 104.5 | 1.332 | 18.177 | 13.380 | 0.133 | 2.362 | 0.678 |
| 120.0 | 29.9 | 119.2 | 0.695 | 8.386 | 11.336 | 0.161 | 2.908 | 0.623 |
| 135.0 | 29.6 | 133.6 | 1.184 | 8.813 | 12.619 | 0.224 | 2.353 | 0.480 |
| 150.0 | 30.6 | 148.6 | 1.154 | 5.585 | 10.303 | 0.213 | 1.554 | 0.336 |
| 165.0 | 30.9 | 163.5 | 1.286 | 5.867 | 10.204 | 0.243 | 1.130 | 0.331 |
| 180.0 | 31.5 | 179.1 | 1.477 | 5.862 | 9.999 | 0.243 | 1.053 | 0.317 |
| 195.0 | 31.1 | 194.7 | 1.102 | 5.613 | 10.113 | 0.237 | 1.241 | 0.318 |
| 210.0 | 30.8 | 210.7 | 1.153 | 5.999 | 10.030 | 0.203 | 1.678 | 0.316 |
| 225.0 | 29.7 | 226.5 | 1.008 | 10.327 | 12.648 | 0.223 | 2.592 | 0.560 |
| 240.0 | 30.0 | 240.6 | 0.646 | 9.170 | 12.880 | 0.142 | 3.030 | 0.598 |
| 255.0 | 30.2 | 255.6 | 0.572 | 11.147 | 12.963 | 0.133 | 2.721 | 0.571 |
| 270.0 | 30.3 | 270.7 | 0.870 | 12.955 | 15.061 | 0.112 | 2.486 | 0.955 |
| 285.0 | 30.4 | 285.6 | 1.042 | 14.629 | 15.734 | 0.233 | 2.490 | 1.547 |
| 300.0 | 30.4 | 300.1 | 1.336 | 7.617 | 16.554 | 0.380 | 1.982 | 1.866 |
| 315.0 | 30.4 | 314.9 | 1.804 | 6.099 | 16.087 | 0.465 | 1.463 | 1.951 |
| 330.0 | 30.4 | 329.9 | 2.006 | 4.899 | 15.737 | 0.508 | 1.109 | 1.990 |
| 345.0 | 30.4 | 344.9 | 1.949 | 4.196 | 15.832 | 0.534 | 0.837 | 2.000 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.36: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.2 | -28.3 | 0.964 | 4.520 | 11.709 | 0.189 | 0.950 | 0.507 |
| 15.0 | -2.4 | -147.7 | 0.902 | 5.243 | 12.032 | 0.178 | 1.076 | 0.555 |
| 30.0 | -1.7 | -66.4 | 1.059 | 5.510 | 12.073 | 0.180 | 1.613 | 0.537 |
| 45.0 | -0.1 | 23.7 | 0.857 | 4.176 | 12.202 | 0.196 | 1.085 | 0.540 |
| 60.0 | 0.5 | 48.8 | 0.697 | 4.926 | 11.851 | 0.150 | 1.308 | 0.551 |
| 75.0 | 0.7 | 68.5 | 0.504 | 5.414 | 12.197 | 0.088 | 1.346 | 0.531 |
| 90.0 | 0.2 | 90.5 | 0.236 | 5.192 | 11.958 | 0.029 | 1.374 | 0.514 |
| 105.0 | -0.4 | 103.0 | 0.402 | 5.700 | 11.914 | 0.048 | 1.421 | 0.531 |
| 120.0 | -1.2 | 112.5 | 0.537 | 5.994 | 12.718 | 0.076 | 1.446 | 0.545 |
| 135.0 | -1.9 | 121.3 | 0.480 | 5.943 | 12.078 | 0.108 | 1.409 | 0.555 |
| 150.0 | -2.4 | 131.4 | 0.536 | 5.379 | 11.561 | 0.139 | 1.284 | 0.549 |
| 165.0 | -2.4 | 144.6 | 0.714 | 4.872 | 11.775 | 0.169 | 1.043 | 0.545 |
| 180.0 | -1.6 | 164.4 | 0.812 | 4.021 | 12.041 | 0.187 | 0.623 | 0.520 |
| 195.0 | 0.3 | 233.5 | 0.820 | 6.775 | 12.082 | 0.127 | 1.426 | 0.522 |
| 210.0 | 0.0 | 243.7 | 0.732 | 6.420 | 11.931 | 0.100 | 1.489 | 0.528 |
| 225.0 | -0.2 | 252.5 | 0.548 | 5.832 | 11.807 | 0.074 | 1.505 | 0.520 |
| 240.0 | -0.4 | 261.1 | 0.385 | 5.796 | 11.728 | 0.048 | 1.473 | 0.503 |
| 255.0 | -0.6 | 270.1 | 0.210 | 6.199 | 11.840 | 0.029 | 1.424 | 0.494 |
| 270.0 | -0.6 | 279.8 | 0.326 | 6.051 | 11.992 | 0.041 | 1.371 | 0.495 |
| 285.0 | -0.5 | 289.4 | 0.555 | 6.136 | 12.387 | 0.075 | 1.312 | 0.511 |
| 300.0 | -0.5 | 298.8 | 0.542 | 6.080 | 12.318 | 0.109 | 1.251 | 0.523 |
| 315.0 | -0.4 | 307.9 | 0.671 | 5.567 | 12.091 | 0.139 | 1.182 | 0.528 |
| 330.0 | -0.5 | 317.1 | 0.730 | 5.522 | 11.826 | 0.163 | 1.099 | 0.524 |
| 345.0 | -0.7 | 325.3 | 0.909 | 4.960 | 11.759 | 0.180 | 1.008 | 0.517 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.37: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.8 | -27.9 | 1.010 | 5.502 | 11.535 | 0.222 | 1.026 | 0.574 |
| 15.0 | 3.7 | -20.6 | 0.968 | 4.325 | 11.570 | 0.232 | 0.944 | 0.575 |
| 30.0 | 3.6 | -12.5 | 1.050 | 3.727 | 11.420 | 0.237 | 0.868 | 0.575 |
| 45.0 | 3.6 | -1.5 | 1.223 | 3.793 | 11.637 | 0.239 | 0.835 | 0.581 |
| 60.0 | 3.8 | 23.5 | 0.901 | 4.366 | 12.042 | 0.221 | 1.026 | 0.601 |
| 75.0 | 4.3 | 56.6 | 0.656 | 5.346 | 12.586 | 0.137 | 1.285 | 0.597 |
| 90.0 | 4.4 | 79.3 | 0.284 | 5.300 | 12.223 | 0.044 | 1.276 | 0.549 |
| 105.0 | 4.3 | 95.3 | 0.166 | 5.669 | 11.995 | 0.023 | 1.306 | 0.537 |
| 120.0 | 4.1 | 107.3 | 0.363 | 6.197 | 12.591 | 0.045 | 1.330 | 0.539 |
| 135.0 | 3.8 | 115.8 | 0.361 | 6.409 | 11.942 | 0.066 | 1.324 | 0.533 |
| 150.0 | 3.6 | 125.1 | 0.607 | 5.605 | 12.171 | 0.089 | 1.279 | 0.515 |
| 165.0 | 3.4 | 134.7 | 0.723 | 5.107 | 11.860 | 0.110 | 1.180 | 0.486 |
| 180.0 | 3.4 | 146.6 | 0.904 | 4.625 | 11.746 | 0.127 | 1.016 | 0.442 |
| 195.0 | 3.5 | 165.0 | 0.847 | 4.933 | 12.038 | 0.141 | 0.833 | 0.387 |
| 210.0 | 4.4 | 215.1 | 0.672 | 5.423 | 11.533 | 0.125 | 1.174 | 0.370 |
| 225.0 | 4.3 | 236.0 | 0.561 | 6.001 | 12.042 | 0.097 | 1.398 | 0.433 |
| 240.0 | 4.4 | 249.7 | 0.453 | 5.875 | 11.853 | 0.067 | 1.475 | 0.458 |
| 255.0 | 4.5 | 261.8 | 0.289 | 6.264 | 11.635 | 0.038 | 1.474 | 0.464 |
| 270.0 | 4.6 | 274.3 | 0.121 | 5.985 | 11.951 | 0.021 | 1.421 | 0.484 |
| 285.0 | 4.7 | 287.4 | 0.353 | 6.711 | 11.994 | 0.062 | 1.371 | 0.514 |
| 300.0 | 4.7 | 300.0 | 0.493 | 5.420 | 11.994 | 0.121 | 1.284 | 0.549 |
| 315.0 | 4.5 | 310.9 | 0.684 | 5.534 | 12.475 | 0.167 | 1.200 | 0.567 |
| 330.0 | 4.2 | 318.6 | 0.835 | 5.917 | 11.750 | 0.192 | 1.148 | 0.571 |
| 345.0 | 3.9 | 325.1 | 0.975 | 5.899 | 11.659 | 0.209 | 1.099 | 0.573 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.38: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.4 | -3.3 | 1.183 | 3.452 | 11.594 | 0.274 | 0.545 | 0.669 |
| 15.0 | 9.5 | 11.9 | 1.161 | 3.441 | 11.799 | 0.272 | 0.653 | 0.687 |
| 30.0 | 9.6 | 27.4 | 1.092 | 3.744 | 11.947 | 0.251 | 0.866 | 0.694 |
| 45.0 | 9.7 | 42.6 | 0.799 | 4.654 | 12.193 | 0.209 | 1.058 | 0.682 |
| 60.0 | 9.8 | 57.5 | 0.519 | 5.088 | 12.285 | 0.148 | 1.145 | 0.649 |
| 75.0 | 9.9 | 72.9 | 0.391 | 4.826 | 12.910 | 0.074 | 1.062 | 0.592 |
| 90.0 | 9.9 | 88.0 | 0.130 | 5.096 | 12.040 | 0.030 | 1.070 | 0.550 |
| 105.0 | 9.9 | 103.1 | 0.198 | 5.647 | 12.119 | 0.039 | 1.130 | 0.527 |
| 120.0 | 9.5 | 116.6 | 0.434 | 5.821 | 12.600 | 0.060 | 1.144 | 0.513 |
| 135.0 | 9.3 | 130.6 | 0.635 | 5.243 | 12.601 | 0.076 | 1.038 | 0.458 |
| 150.0 | 9.2 | 144.9 | 0.567 | 4.628 | 11.837 | 0.088 | 1.003 | 0.399 |
| 165.0 | 9.1 | 159.5 | 0.547 | 3.898 | 11.487 | 0.099 | 0.967 | 0.341 |
| 180.0 | 9.4 | 176.8 | 0.541 | 4.219 | 10.766 | 0.103 | 0.915 | 0.273 |
| 195.0 | 9.7 | 193.7 | 0.710 | 4.806 | 11.111 | 0.105 | 0.956 | 0.206 |
| 210.0 | 9.6 | 211.3 | 0.737 | 5.645 | 11.468 | 0.096 | 1.181 | 0.252 |
| 225.0 | 9.6 | 228.1 | 0.601 | 7.623 | 11.542 | 0.088 | 1.519 | 0.312 |
| 240.0 | 9.6 | 243.4 | 0.537 | 6.711 | 11.804 | 0.071 | 1.627 | 0.377 |
| 255.0 | 9.9 | 257.2 | 0.376 | 6.592 | 11.899 | 0.050 | 1.603 | 0.408 |
| 270.0 | 9.9 | 271.4 | 0.214 | 7.222 | 11.860 | 0.034 | 1.557 | 0.460 |
| 285.0 | 10.0 | 285.7 | 0.300 | 7.280 | 12.016 | 0.058 | 1.461 | 0.518 |
| 300.0 | 9.9 | 299.9 | 0.525 | 5.754 | 12.023 | 0.131 | 1.324 | 0.580 |
| 315.0 | 9.8 | 313.7 | 0.850 | 4.984 | 12.446 | 0.195 | 1.115 | 0.616 |
| 330.0 | 9.7 | 327.8 | 0.998 | 4.651 | 11.766 | 0.238 | 0.895 | 0.637 |
| 345.0 | 9.5 | 342.0 | 1.141 | 4.092 | 11.683 | 0.264 | 0.663 | 0.654 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.39: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.9 | -1.1 | 1.281 | 3.090 | 12.081 | 0.306 | 0.429 | 0.746 |
| 15.0 | 14.9 | 14.1 | 1.234 | 3.416 | 11.995 | 0.300 | 0.609 | 0.758 |
| 30.0 | 14.9 | 29.2 | 1.064 | 4.237 | 12.362 | 0.275 | 0.868 | 0.763 |
| 45.0 | 15.0 | 44.2 | 0.851 | 5.010 | 12.296 | 0.225 | 1.054 | 0.738 |
| 60.0 | 15.0 | 59.0 | 0.656 | 5.441 | 13.233 | 0.154 | 1.168 | 0.694 |
| 75.0 | 15.1 | 74.0 | 0.408 | 5.556 | 13.214 | 0.076 | 0.969 | 0.609 |
| 90.0 | 15.1 | 89.0 | 0.167 | 4.819 | 12.365 | 0.044 | 0.967 | 0.548 |
| 105.0 | 15.1 | 104.1 | 0.368 | 5.232 | 11.903 | 0.055 | 1.037 | 0.500 |
| 120.0 | 14.9 | 118.4 | 0.472 | 6.026 | 12.603 | 0.071 | 1.240 | 0.517 |
| 135.0 | 14.9 | 133.6 | 0.355 | 5.086 | 11.409 | 0.082 | 1.203 | 0.448 |
| 150.0 | 14.9 | 148.7 | 0.401 | 4.148 | 11.087 | 0.088 | 0.859 | 0.361 |
| 165.0 | 14.9 | 163.7 | 0.513 | 3.785 | 10.958 | 0.095 | 0.703 | 0.296 |
| 180.0 | 15.0 | 178.9 | 0.422 | 3.821 | 10.357 | 0.089 | 0.640 | 0.237 |
| 195.0 | 15.0 | 194.3 | 0.612 | 5.499 | 10.375 | 0.095 | 0.882 | 0.190 |
| 210.0 | 15.0 | 209.9 | 0.499 | 5.636 | 10.630 | 0.084 | 1.265 | 0.173 |
| 225.0 | 14.9 | 226.0 | 0.548 | 6.081 | 10.927 | 0.086 | 1.749 | 0.223 |
| 240.0 | 14.9 | 241.6 | 0.615 | 6.951 | 11.776 | 0.076 | 1.902 | 0.302 |
| 255.0 | 15.1 | 256.0 | 0.343 | 6.819 | 11.872 | 0.062 | 1.794 | 0.363 |
| 270.0 | 15.1 | 270.7 | 0.238 | 7.129 | 11.959 | 0.047 | 1.698 | 0.448 |
| 285.0 | 15.2 | 285.3 | 0.376 | 7.040 | 12.396 | 0.061 | 1.596 | 0.533 |
| 300.0 | 15.1 | 299.9 | 0.605 | 6.771 | 12.324 | 0.138 | 1.401 | 0.619 |
| 315.0 | 15.0 | 314.3 | 0.758 | 5.350 | 12.157 | 0.213 | 1.108 | 0.667 |
| 330.0 | 14.9 | 328.9 | 1.092 | 4.223 | 11.881 | 0.266 | 0.814 | 0.706 |
| 345.0 | 14.9 | 343.8 | 1.229 | 3.466 | 11.821 | 0.294 | 0.562 | 0.728 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.40: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.1 | -0.5 | 1.356 | 3.121 | 12.188 | 0.335 | 0.456 | 0.854 |
| 15.0 | 20.1 | 14.7 | 1.264 | 3.547 | 12.234 | 0.326 | 0.681 | 0.860 |
| 30.0 | 20.1 | 29.8 | 1.131 | 4.414 | 12.425 | 0.297 | 0.961 | 0.854 |
| 45.0 | 20.1 | 44.7 | 1.032 | 4.971 | 12.887 | 0.243 | 1.151 | 0.818 |
| 60.0 | 20.2 | 59.6 | 0.619 | 5.532 | 13.011 | 0.164 | 1.310 | 0.757 |
| 75.0 | 20.3 | 74.4 | 0.300 | 5.146 | 12.542 | 0.081 | 0.977 | 0.632 |
| 90.0 | 20.3 | 89.4 | 0.215 | 4.633 | 12.103 | 0.058 | 0.945 | 0.541 |
| 105.0 | 20.3 | 104.5 | 0.382 | 5.155 | 12.172 | 0.073 | 0.986 | 0.464 |
| 120.0 | 20.1 | 119.2 | 0.336 | 5.713 | 11.361 | 0.089 | 1.603 | 0.515 |
| 135.0 | 20.1 | 134.4 | 0.540 | 5.553 | 11.189 | 0.100 | 1.403 | 0.410 |
| 150.0 | 20.1 | 149.3 | 0.625 | 5.367 | 11.002 | 0.114 | 0.982 | 0.340 |
| 165.0 | 20.2 | 164.4 | 0.609 | 2.994 | 10.827 | 0.113 | 0.582 | 0.258 |
| 180.0 | 20.2 | 179.5 | 0.369 | 3.586 | 10.245 | 0.103 | 0.544 | 0.210 |
| 195.0 | 20.2 | 194.6 | 0.403 | 5.347 | 10.111 | 0.094 | 0.771 | 0.217 |
| 210.0 | 20.2 | 209.9 | 0.611 | 7.375 | 10.037 | 0.093 | 1.300 | 0.270 |
| 225.0 | 20.2 | 225.0 | 0.525 | 7.406 | 10.073 | 0.081 | 1.531 | 0.233 |
| 240.0 | 20.1 | 240.7 | 0.534 | 8.194 | 10.552 | 0.086 | 2.136 | 0.263 |
| 255.0 | 20.2 | 255.5 | 0.486 | 8.403 | 11.243 | 0.075 | 1.881 | 0.342 |
| 270.0 | 20.3 | 270.4 | 0.299 | 8.067 | 11.938 | 0.059 | 1.776 | 0.453 |
| 285.0 | 20.3 | 285.2 | 0.354 | 7.734 | 12.073 | 0.065 | 1.669 | 0.557 |
| 300.0 | 20.2 | 299.8 | 0.757 | 8.105 | 13.151 | 0.147 | 1.449 | 0.672 |
| 315.0 | 20.2 | 314.5 | 0.903 | 5.703 | 12.378 | 0.233 | 1.120 | 0.753 |
| 330.0 | 20.1 | 329.4 | 1.225 | 4.288 | 12.396 | 0.290 | 0.792 | 0.804 |
| 345.0 | 20.1 | 344.4 | 1.417 | 3.302 | 12.171 | 0.322 | 0.517 | 0.834 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.41: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 1.523 | 3.650 | 12.901 | 0.357 | 0.552 | 1.034 |
| 15.0 | 25.2 | 14.9 | 1.413 | 4.234 | 13.546 | 0.348 | 0.768 | 1.034 |
| 30.0 | 25.2 | 30.0 | 1.240 | 4.963 | 13.269 | 0.319 | 1.038 | 1.010 |
| 45.0 | 25.2 | 45.0 | 0.991 | 5.722 | 13.226 | 0.260 | 1.284 | 0.930 |
| 60.0 | 25.3 | 59.8 | 0.610 | 6.474 | 12.905 | 0.174 | 1.418 | 0.822 |
| 75.0 | 25.3 | 74.6 | 0.424 | 5.308 | 13.280 | 0.087 | 1.050 | 0.652 |
| 90.0 | 25.3 | 89.6 | 0.263 | 4.605 | 12.086 | 0.071 | 1.000 | 0.533 |
| 105.0 | 25.3 | 104.6 | 0.423 | 4.946 | 11.667 | 0.092 | 0.966 | 0.418 |
| 120.0 | 25.2 | 119.6 | 0.430 | 6.080 | 11.029 | 0.110 | 1.823 | 0.472 |
| 135.0 | 25.2 | 134.5 | 0.349 | 4.700 | 10.302 | 0.117 | 1.274 | 0.324 |
| 150.0 | 25.3 | 149.5 | 0.545 | 5.111 | 10.319 | 0.141 | 1.209 | 0.284 |
| 165.0 | 25.5 | 164.5 | 0.484 | 3.393 | 10.291 | 0.155 | 0.660 | 0.246 |
| 180.0 | 25.6 | 179.7 | 0.601 | 3.091 | 10.177 | 0.116 | 0.327 | 0.144 |
| 195.0 | 25.6 | 195.1 | 0.494 | 4.454 | 10.182 | 0.147 | 0.729 | 0.222 |
| 210.0 | 25.3 | 210.0 | 0.597 | 6.295 | 10.155 | 0.113 | 1.160 | 0.288 |
| 225.0 | 25.2 | 225.2 | 0.850 | 8.805 | 10.002 | 0.116 | 1.911 | 0.413 |
| 240.0 | 25.3 | 240.2 | 0.568 | 9.064 | 10.027 | 0.097 | 2.129 | 0.324 |
| 255.0 | 25.3 | 255.2 | 0.456 | 9.086 | 11.149 | 0.087 | 1.824 | 0.351 |
| 270.0 | 25.3 | 270.2 | 0.294 | 7.354 | 11.866 | 0.070 | 1.764 | 0.460 |
| 285.0 | 25.3 | 285.1 | 0.349 | 8.342 | 12.100 | 0.072 | 1.729 | 0.596 |
| 300.0 | 25.3 | 299.8 | 0.569 | 7.382 | 12.417 | 0.155 | 1.432 | 0.742 |
| 315.0 | 25.3 | 314.7 | 0.946 | 5.767 | 12.810 | 0.249 | 1.089 | 0.870 |
| 330.0 | 25.3 | 329.6 | 1.263 | 4.660 | 13.043 | 0.310 | 0.775 | 0.966 |
| 345.0 | 25.2 | 344.7 | 1.518 | 3.775 | 13.002 | 0.344 | 0.544 | 1.010 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.42: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 9.0$ m and $T_p = 18.5$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.1 | 1.514 | 4.288 | 13.870 | 0.376 | 0.665 | 1.264 |
| 15.0 | 30.4 | 15.0 | 1.511 | 5.510 | 13.846 | 0.367 | 0.876 | 1.261 |
| 30.0 | 30.4 | 30.1 | 1.401 | 5.928 | 13.414 | 0.338 | 1.114 | 1.223 |
| 45.0 | 30.4 | 45.1 | 1.130 | 5.813 | 13.712 | 0.281 | 1.337 | 1.098 |
| 60.0 | 30.4 | 60.0 | 0.712 | 6.581 | 13.589 | 0.187 | 1.542 | 0.919 |
| 75.0 | 30.4 | 74.7 | 0.360 | 4.882 | 12.351 | 0.094 | 1.153 | 0.672 |
| 90.0 | 30.4 | 89.7 | 0.371 | 4.811 | 12.083 | 0.084 | 1.123 | 0.528 |
| 105.0 | 30.4 | 104.7 | 0.534 | 4.986 | 11.740 | 0.111 | 1.034 | 0.389 |
| 120.0 | 30.3 | 119.8 | 0.579 | 6.987 | 10.381 | 0.135 | 2.126 | 0.438 |
| 135.0 | 30.3 | 134.5 | 0.566 | 5.421 | 10.209 | 0.153 | 1.651 | 0.320 |
| 150.0 | 30.5 | 149.5 | 0.613 | 4.427 | 10.155 | 0.183 | 1.113 | 0.261 |
| 165.0 | 30.8 | 164.5 | 0.705 | 3.859 | 10.144 | 0.188 | 0.585 | 0.182 |
| 180.0 | 30.5 | 179.4 | 0.907 | 4.105 | 10.011 | 0.196 | 0.510 | 0.168 |
| 195.0 | 31.1 | 194.9 | 0.592 | 4.393 | 9.997 | 0.165 | 0.676 | 0.170 |
| 210.0 | 30.7 | 210.2 | 0.594 | 5.459 | 10.062 | 0.170 | 1.126 | 0.274 |
| 225.0 | 30.4 | 225.0 | 0.530 | 6.477 | 10.057 | 0.122 | 1.515 | 0.374 |
| 240.0 | 30.4 | 240.0 | 0.442 | 8.081 | 10.019 | 0.106 | 1.750 | 0.353 |
| 255.0 | 30.4 | 255.1 | 0.515 | 8.232 | 11.045 | 0.104 | 1.642 | 0.367 |
| 270.0 | 30.4 | 270.1 | 0.334 | 7.635 | 11.779 | 0.083 | 1.673 | 0.477 |
| 285.0 | 30.4 | 285.1 | 0.340 | 8.640 | 12.454 | 0.079 | 1.685 | 0.640 |
| 300.0 | 30.4 | 299.8 | 0.639 | 8.210 | 13.118 | 0.167 | 1.425 | 0.820 |
| 315.0 | 30.4 | 314.8 | 1.005 | 6.037 | 13.468 | 0.265 | 1.053 | 1.039 |
| 330.0 | 30.4 | 329.8 | 1.398 | 5.119 | 13.733 | 0.331 | 0.806 | 1.181 |
| 345.0 | 30.4 | 344.9 | 1.491 | 4.455 | 14.139 | 0.363 | 0.632 | 1.240 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.43: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.9 | -362.1 | 1.962 | 8.942 | 14.495 | 0.302 | 2.586 | 1.038 |
| 15.0 | -1.3 | -366.1 | 1.928 | 9.623 | 14.425 | 0.341 | 2.578 | 1.027 |
| 30.0 | -4.3 | 98.6 | 1.921 | 10.230 | 15.451 | 0.345 | 2.343 | 1.182 |
| 45.0 | -4.6 | -120.5 | 1.991 | 10.380 | 15.516 | 0.319 | 2.330 | 1.201 |
| 60.0 | 1.3 | 32.4 | 2.377 | 8.491 | 15.922 | 0.328 | 2.285 | 1.165 |
| 75.0 | 2.5 | 77.1 | 1.508 | 10.603 | 17.220 | 0.188 | 1.974 | 1.110 |
| 90.0 | 1.1 | 99.2 | 1.913 | 10.465 | 15.220 | 0.141 | 2.116 | 1.093 |
| 105.0 | -1.8 | 109.2 | 2.044 | 9.038 | 15.762 | 0.187 | 2.252 | 1.186 |
| 120.0 | -4.6 | 118.2 | 1.278 | 10.566 | 14.601 | 0.243 | 2.303 | 1.223 |
| 135.0 | -5.7 | 125.8 | 1.750 | 13.127 | 15.117 | 0.299 | 2.223 | 1.253 |
| 150.0 | -3.9 | 322.4 | 2.154 | 12.086 | 15.258 | 0.343 | 2.432 | 1.133 |
| 165.0 | -3.4 | 324.2 | 2.773 | 9.795 | 16.387 | 0.352 | 2.514 | 1.106 |
| 180.0 | -2.2 | 783.2 | 1.703 | 9.646 | 13.743 | 0.311 | 2.671 | 1.062 |
| 195.0 | -2.6 | 28.5 | 2.699 | 9.699 | 15.254 | 0.328 | 2.529 | 0.989 |
| 210.0 | -0.5 | 260.7 | 1.493 | 13.074 | 14.798 | 0.165 | 2.770 | 0.983 |
| 225.0 | -1.1 | 262.1 | 1.388 | 14.080 | 13.578 | 0.141 | 2.778 | 0.942 |
| 240.0 | -1.8 | 266.7 | 0.938 | 14.385 | 14.275 | 0.112 | 2.721 | 0.909 |
| 255.0 | -2.4 | 272.0 | 1.160 | 13.633 | 15.067 | 0.100 | 2.642 | 0.880 |
| 270.0 | -2.4 | 277.0 | 1.441 | 12.983 | 16.089 | 0.124 | 2.471 | 0.895 |
| 285.0 | -2.2 | 281.9 | 1.791 | 12.755 | 15.864 | 0.172 | 2.355 | 0.928 |
| 300.0 | -1.4 | 288.1 | 1.310 | 12.631 | 14.950 | 0.211 | 2.272 | 0.957 |
| 315.0 | -1.7 | 292.9 | 1.443 | 12.291 | 15.751 | 0.250 | 2.216 | 0.983 |
| 330.0 | -1.9 | 298.9 | 2.104 | 11.772 | 15.031 | 0.298 | 2.151 | 0.990 |
| 345.0 | -2.1 | 151.1 | 2.052 | 11.228 | 14.444 | 0.313 | 2.313 | 0.990 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.44: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.8 | -48.0 | 2.028 | 12.931 | 15.425 | 0.375 | 2.079 | 1.086 |
| 15.0 | 2.1 | -79.8 | 2.146 | 11.723 | 15.174 | 0.333 | 2.641 | 1.069 |
| 30.0 | 2.2 | -120.7 | 1.885 | 12.110 | 15.201 | 0.219 | 2.225 | 1.093 |
| 45.0 | 2.8 | -101.7 | 1.918 | 13.657 | 15.734 | 0.236 | 2.411 | 1.127 |
| 60.0 | 3.6 | -92.5 | 2.598 | 11.606 | 14.867 | 0.213 | 2.394 | 1.123 |
| 75.0 | 4.3 | -74.4 | 2.496 | 21.078 | 16.289 | 0.185 | 2.501 | 1.105 |
| 90.0 | 5.1 | 89.4 | 3.065 | 24.055 | 16.634 | 0.105 | 2.004 | 1.082 |
| 105.0 | 4.4 | 103.8 | 1.811 | 9.874 | 14.929 | 0.127 | 2.048 | 1.087 |
| 120.0 | 3.4 | 112.7 | 1.387 | 12.874 | 16.097 | 0.163 | 2.103 | 1.119 |
| 135.0 | 2.5 | 120.3 | 1.430 | 10.613 | 16.550 | 0.195 | 2.123 | 1.115 |
| 150.0 | 2.0 | 128.7 | 1.389 | 10.700 | 16.673 | 0.225 | 2.070 | 1.060 |
| 165.0 | 1.5 | 132.3 | 1.775 | 12.487 | 15.051 | 0.240 | 2.089 | 1.030 |
| 180.0 | 2.2 | 82.9 | 2.041 | 10.494 | 14.410 | 0.329 | 2.652 | 0.995 |
| 195.0 | 3.5 | 364.1 | 2.074 | 12.160 | 15.881 | 0.316 | 2.618 | 1.033 |
| 210.0 | 4.2 | 258.4 | 2.171 | 18.847 | 13.835 | 0.170 | 2.768 | 0.912 |
| 225.0 | 3.7 | 262.3 | 1.553 | 19.147 | 14.570 | 0.150 | 2.838 | 0.902 |
| 240.0 | 3.3 | 267.8 | 2.417 | 16.665 | 14.360 | 0.136 | 2.769 | 0.902 |
| 255.0 | 3.8 | 275.6 | 1.169 | 15.033 | 14.867 | 0.097 | 2.620 | 0.894 |
| 270.0 | 3.6 | 281.8 | 1.956 | 12.869 | 15.198 | 0.144 | 2.549 | 0.925 |
| 285.0 | 4.1 | 288.6 | 1.539 | 12.691 | 15.933 | 0.198 | 2.401 | 0.977 |
| 300.0 | 3.9 | 294.7 | 1.431 | 15.014 | 15.005 | 0.261 | 2.261 | 1.024 |
| 315.0 | 3.5 | 298.7 | 1.585 | 12.858 | 14.706 | 0.298 | 2.205 | 1.057 |
| 330.0 | 3.3 | 303.3 | 1.865 | 13.446 | 13.974 | 0.335 | 2.160 | 1.072 |
| 345.0 | 2.9 | 307.7 | 2.008 | 12.954 | 16.524 | 0.359 | 2.118 | 1.085 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.45: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.5 | -40.9 | 2.084 | 10.454 | 15.134 | 0.448 | 2.098 | 1.221 |
| 15.0 | 7.3 | -34.1 | 2.372 | 7.836 | 14.523 | 0.467 | 2.016 | 1.229 |
| 30.0 | 7.2 | -24.6 | 2.351 | 8.710 | 13.394 | 0.482 | 1.890 | 1.220 |
| 45.0 | 7.2 | -15.9 | 2.923 | 6.633 | 13.971 | 0.490 | 1.836 | 1.221 |
| 60.0 | 7.2 | 1.8 | 2.900 | 8.633 | 13.506 | 0.494 | 1.698 | 1.239 |
| 75.0 | 9.8 | 71.2 | 1.777 | 7.871 | 17.410 | 0.222 | 1.776 | 1.235 |
| 90.0 | 9.8 | 88.5 | 0.866 | 10.527 | 16.670 | 0.077 | 1.814 | 1.077 |
| 105.0 | 9.6 | 104.5 | 1.306 | 7.917 | 14.823 | 0.105 | 1.885 | 1.010 |
| 120.0 | 8.9 | 116.0 | 4.329 | 15.464 | 15.386 | 0.177 | 1.917 | 0.993 |
| 135.0 | 8.1 | 126.4 | 1.938 | 11.215 | 15.764 | 0.169 | 1.743 | 0.921 |
| 150.0 | 7.7 | 135.1 | 2.313 | 11.144 | 16.267 | 0.181 | 1.722 | 0.866 |
| 165.0 | 7.4 | 144.3 | 1.655 | 10.293 | 15.315 | 0.192 | 1.836 | 0.800 |
| 180.0 | 7.4 | 154.7 | 1.661 | 7.589 | 13.507 | 0.208 | 1.666 | 0.684 |
| 195.0 | 8.9 | 199.1 | 1.734 | 11.159 | 11.893 | 0.220 | 1.882 | 0.389 |
| 210.0 | 8.3 | 237.7 | 2.657 | 19.236 | 13.310 | 0.234 | 2.790 | 0.734 |
| 225.0 | 8.3 | 253.6 | 2.425 | 24.090 | 13.261 | 0.177 | 2.894 | 0.822 |
| 240.0 | 8.3 | 261.0 | 1.486 | 19.346 | 14.054 | 0.139 | 2.851 | 0.848 |
| 255.0 | 8.4 | 270.4 | 1.082 | 16.335 | 13.758 | 0.099 | 2.842 | 0.878 |
| 270.0 | 8.6 | 278.9 | 2.555 | 14.080 | 15.158 | 0.152 | 2.790 | 0.925 |
| 285.0 | 9.1 | 288.4 | 1.981 | 13.702 | 15.396 | 0.207 | 2.586 | 1.006 |
| 300.0 | 9.3 | 299.0 | 1.777 | 12.493 | 14.823 | 0.312 | 2.260 | 1.105 |
| 315.0 | 8.4 | 306.6 | 1.482 | 11.141 | 14.713 | 0.379 | 2.113 | 1.154 |
| 330.0 | 7.9 | 309.6 | 1.921 | 10.857 | 14.914 | 0.402 | 2.126 | 1.184 |
| 345.0 | 7.7 | 314.9 | 2.077 | 11.824 | 14.998 | 0.431 | 2.105 | 1.195 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.46: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 13.0 | -8.8 | 2.780 | 6.585 | 13.748 | 0.572 | 1.525 | 1.404 |
| 15.0 | 13.6 | 9.9 | 2.601 | 6.574 | 14.250 | 0.563 | 1.468 | 1.441 |
| 30.0 | 14.0 | 26.7 | 2.247 | 7.046 | 13.701 | 0.531 | 1.522 | 1.461 |
| 45.0 | 14.4 | 42.6 | 1.850 | 10.119 | 14.784 | 0.464 | 1.723 | 1.477 |
| 60.0 | 14.6 | 57.5 | 1.420 | 9.541 | 15.347 | 0.358 | 1.754 | 1.443 |
| 75.0 | 15.0 | 73.1 | 1.197 | 9.461 | 16.076 | 0.197 | 1.743 | 1.268 |
| 90.0 | 15.0 | 88.9 | 1.441 | 20.442 | 15.475 | 0.087 | 1.797 | 1.051 |
| 105.0 | 15.0 | 104.7 | 1.623 | 19.691 | 14.418 | 0.126 | 1.931 | 0.907 |
| 120.0 | 14.4 | 117.4 | 0.957 | 10.852 | 14.301 | 0.137 | 1.848 | 0.874 |
| 135.0 | 14.0 | 131.7 | 1.090 | 7.611 | 14.419 | 0.148 | 1.563 | 0.755 |
| 150.0 | 14.2 | 146.4 | 0.822 | 6.451 | 12.787 | 0.156 | 1.190 | 0.591 |
| 165.0 | 14.6 | 162.0 | 1.102 | 6.576 | 12.917 | 0.168 | 1.004 | 0.479 |
| 180.0 | 14.6 | 177.5 | 1.104 | 7.377 | 11.488 | 0.193 | 1.132 | 0.398 |
| 195.0 | 14.7 | 194.8 | 1.278 | 10.963 | 11.494 | 0.172 | 1.492 | 0.353 |
| 210.0 | 14.2 | 216.7 | 2.173 | 12.923 | 12.594 | 0.195 | 2.317 | 0.462 |
| 225.0 | 13.8 | 235.0 | 1.443 | 11.742 | 13.384 | 0.165 | 2.703 | 0.578 |
| 240.0 | 13.7 | 248.5 | 1.472 | 13.779 | 14.488 | 0.163 | 2.960 | 0.696 |
| 255.0 | 13.9 | 261.5 | 1.313 | 25.110 | 13.725 | 0.141 | 3.089 | 0.778 |
| 270.0 | 14.2 | 274.6 | 0.735 | 15.329 | 14.156 | 0.104 | 3.100 | 0.891 |
| 285.0 | 14.5 | 287.4 | 2.212 | 13.629 | 14.761 | 0.193 | 2.912 | 1.027 |
| 300.0 | 14.6 | 300.2 | 1.323 | 12.642 | 14.645 | 0.332 | 2.352 | 1.190 |
| 315.0 | 14.4 | 312.9 | 1.756 | 11.173 | 14.330 | 0.439 | 1.926 | 1.277 |
| 330.0 | 13.9 | 326.0 | 2.057 | 9.238 | 13.870 | 0.508 | 1.694 | 1.347 |
| 345.0 | 13.5 | 339.5 | 2.480 | 8.153 | 13.635 | 0.554 | 1.486 | 1.376 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.47: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.6 | -1.6 | 2.484 | 6.303 | 13.907 | 0.596 | 1.298 | 1.596 |
| 15.0 | 19.6 | 13.6 | 2.828 | 6.762 | 14.747 | 0.600 | 1.329 | 1.616 |
| 30.0 | 19.7 | 29.1 | 2.213 | 7.953 | 14.792 | 0.564 | 1.576 | 1.632 |
| 45.0 | 19.8 | 44.1 | 1.961 | 8.873 | 15.341 | 0.493 | 1.747 | 1.623 |
| 60.0 | 19.8 | 58.6 | 1.716 | 11.241 | 17.638 | 0.373 | 1.755 | 1.543 |
| 75.0 | 20.0 | 73.8 | 1.067 | 9.249 | 16.669 | 0.198 | 1.802 | 1.307 |
| 90.0 | 20.0 | 89.1 | 2.315 | 20.724 | 16.964 | 0.111 | 1.866 | 1.032 |
| 105.0 | 20.0 | 104.3 | 3.145 | 23.413 | 14.567 | 0.147 | 2.107 | 0.837 |
| 120.0 | 19.7 | 118.6 | 0.737 | 8.928 | 13.371 | 0.150 | 2.065 | 0.817 |
| 135.0 | 19.6 | 133.4 | 1.009 | 7.702 | 13.273 | 0.174 | 1.898 | 0.613 |
| 150.0 | 19.6 | 148.0 | 0.988 | 7.689 | 12.165 | 0.193 | 1.404 | 0.496 |
| 165.0 | 19.6 | 163.7 | 1.059 | 7.233 | 11.853 | 0.204 | 1.048 | 0.418 |
| 180.0 | 19.8 | 179.8 | 1.230 | 8.187 | 11.026 | 0.213 | 1.112 | 0.375 |
| 195.0 | 19.7 | 195.7 | 0.962 | 8.416 | 10.694 | 0.194 | 1.605 | 0.436 |
| 210.0 | 19.7 | 210.4 | 1.660 | 13.758 | 12.912 | 0.176 | 2.025 | 0.573 |
| 225.0 | 19.6 | 226.6 | 0.988 | 10.132 | 12.134 | 0.161 | 2.499 | 0.515 |
| 240.0 | 19.3 | 243.6 | 1.131 | 14.258 | 14.025 | 0.165 | 3.105 | 0.598 |
| 255.0 | 19.6 | 258.3 | 1.144 | 15.892 | 13.694 | 0.152 | 3.242 | 0.710 |
| 270.0 | 19.6 | 272.8 | 0.756 | 17.759 | 13.816 | 0.115 | 3.313 | 0.870 |
| 285.0 | 19.8 | 286.6 | 1.152 | 15.394 | 15.177 | 0.183 | 3.114 | 1.099 |
| 300.0 | 19.9 | 300.3 | 1.524 | 15.570 | 15.281 | 0.348 | 2.563 | 1.310 |
| 315.0 | 19.8 | 314.1 | 2.051 | 10.891 | 14.220 | 0.473 | 1.986 | 1.454 |
| 330.0 | 19.7 | 328.6 | 2.237 | 7.686 | 15.124 | 0.549 | 1.541 | 1.537 |
| 345.0 | 19.6 | 343.4 | 2.794 | 6.333 | 13.966 | 0.584 | 1.354 | 1.577 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.48: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.0 | -0.7 | 3.072 | 6.027 | 15.831 | 0.630 | 1.294 | 1.886 |
| 15.0 | 25.0 | 14.6 | 2.900 | 7.368 | 15.405 | 0.625 | 1.421 | 1.883 |
| 30.0 | 25.0 | 29.8 | 2.561 | 8.854 | 15.533 | 0.589 | 1.638 | 1.873 |
| 45.0 | 25.0 | 44.6 | 1.950 | 9.256 | 15.994 | 0.520 | 1.774 | 1.835 |
| 60.0 | 25.0 | 59.2 | 1.575 | 10.798 | 16.867 | 0.387 | 1.863 | 1.668 |
| 75.0 | 25.0 | 74.1 | 1.198 | 9.078 | 17.174 | 0.208 | 1.940 | 1.340 |
| 90.0 | 25.1 | 89.2 | 6.163 | 15.465 | 14.823 | 0.176 | 1.915 | 1.036 |
| 105.0 | 25.0 | 104.2 | 4.320 | 17.642 | 13.511 | 0.178 | 2.124 | 0.738 |
| 120.0 | 24.8 | 119.1 | 0.973 | 10.985 | 13.690 | 0.192 | 2.667 | 0.787 |
| 135.0 | 24.6 | 133.6 | 1.227 | 9.465 | 12.242 | 0.226 | 2.272 | 0.616 |
| 150.0 | 24.9 | 148.5 | 1.040 | 8.644 | 11.802 | 0.228 | 1.550 | 0.487 |
| 165.0 | 25.5 | 163.7 | 1.242 | 7.630 | 11.303 | 0.215 | 1.023 | 0.399 |
| 180.0 | 26.3 | 179.3 | 2.096 | 7.656 | 10.538 | 0.251 | 0.933 | 0.385 |
| 195.0 | 26.0 | 195.3 | 1.142 | 6.102 | 10.324 | 0.165 | 1.024 | 0.319 |
| 210.0 | 25.1 | 210.5 | 0.995 | 8.655 | 10.129 | 0.176 | 1.706 | 0.500 |
| 225.0 | 24.8 | 225.5 | 0.969 | 10.324 | 10.044 | 0.180 | 2.480 | 0.689 |
| 240.0 | 24.7 | 241.4 | 1.083 | 17.743 | 14.218 | 0.178 | 3.147 | 0.703 |
| 255.0 | 24.8 | 256.7 | 2.283 | 23.630 | 14.929 | 0.176 | 3.279 | 0.708 |
| 270.0 | 24.8 | 271.8 | 1.160 | 17.125 | 13.665 | 0.141 | 3.383 | 0.899 |
| 285.0 | 25.0 | 286.2 | 1.048 | 15.863 | 15.359 | 0.187 | 3.296 | 1.185 |
| 300.0 | 25.0 | 300.4 | 1.327 | 13.017 | 15.739 | 0.366 | 2.703 | 1.479 |
| 315.0 | 25.1 | 314.7 | 1.921 | 11.173 | 15.305 | 0.497 | 2.082 | 1.686 |
| 330.0 | 25.0 | 329.4 | 2.554 | 8.927 | 15.085 | 0.573 | 1.651 | 1.811 |
| 345.0 | 25.0 | 344.3 | 2.508 | 7.291 | 14.913 | 0.610 | 1.349 | 1.857 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.49: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 16.4$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.3 | -0.1 | 2.795 | 6.934 | 16.697 | 0.640 | 1.426 | 2.225 |
| 15.0 | 30.2 | 15.0 | 2.590 | 8.198 | 16.072 | 0.639 | 1.540 | 2.215 |
| 30.0 | 30.2 | 30.1 | 2.551 | 10.105 | 16.679 | 0.605 | 1.735 | 2.178 |
| 45.0 | 30.2 | 44.9 | 2.162 | 9.374 | 17.476 | 0.540 | 1.893 | 2.106 |
| 60.0 | 30.2 | 59.5 | 1.577 | 9.740 | 17.940 | 0.415 | 1.901 | 1.896 |
| 75.0 | 30.1 | 74.2 | 0.912 | 9.397 | 16.372 | 0.214 | 2.128 | 1.408 |
| 90.0 | 30.1 | 89.2 | 3.683 | 24.821 | 14.735 | 0.160 | 2.116 | 1.037 |
| 105.0 | 30.1 | 104.2 | 2.678 | 10.678 | 13.524 | 0.191 | 2.176 | 0.714 |
| 120.0 | 29.8 | 119.5 | 1.500 | 12.054 | 12.377 | 0.233 | 2.913 | 0.664 |
| 135.0 | 29.3 | 132.0 | 1.160 | 9.191 | 12.368 | 0.273 | 2.257 | 0.647 |
| 150.0 | 29.6 | 146.6 | 1.293 | 8.849 | 11.296 | 0.310 | 1.725 | 0.590 |
| 165.0 | 30.3 | 161.6 | 1.345 | 8.774 | 10.609 | 0.371 | 1.324 | 0.559 |
| 180.0 | 31.0 | 177.2 | 1.427 | 8.935 | 10.090 | 0.372 | 1.217 | 0.573 |
| 195.0 | 31.5 | 194.2 | 1.348 | 7.947 | 10.509 | 0.347 | 1.473 | 0.535 |
| 210.0 | 30.4 | 212.5 | 1.069 | 13.751 | 13.119 | 0.315 | 2.332 | 0.601 |
| 225.0 | 30.0 | 225.7 | 1.419 | 11.453 | 11.878 | 0.222 | 2.301 | 0.718 |
| 240.0 | 29.7 | 240.5 | 1.372 | 14.113 | 12.434 | 0.236 | 3.352 | 0.816 |
| 255.0 | 29.9 | 255.8 | 4.764 | 18.925 | 12.830 | 0.226 | 3.231 | 0.808 |
| 270.0 | 30.0 | 271.1 | 0.858 | 15.567 | 14.733 | 0.155 | 3.340 | 0.938 |
| 285.0 | 30.1 | 285.9 | 1.481 | 17.503 | 15.327 | 0.194 | 3.353 | 1.276 |
| 300.0 | 30.2 | 300.4 | 1.396 | 16.271 | 15.425 | 0.380 | 2.920 | 1.658 |
| 315.0 | 30.3 | 315.0 | 1.980 | 13.190 | 16.466 | 0.514 | 2.322 | 1.979 |
| 330.0 | 30.3 | 329.8 | 2.426 | 11.064 | 16.506 | 0.589 | 1.810 | 2.119 |
| 345.0 | 30.3 | 344.8 | 2.644 | 8.079 | 16.925 | 0.628 | 1.512 | 2.199 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.50: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.3 | -529.3 | 1.648 | 9.635 | 12.792 | 0.241 | 2.515 | 0.778 |
| 15.0 | -2.6 | -113.0 | 1.515 | 7.282 | 13.012 | 0.296 | 1.859 | 0.835 |
| 30.0 | -4.0 | -135.5 | 1.411 | 8.521 | 14.060 | 0.277 | 1.897 | 0.933 |
| 45.0 | -3.8 | -120.5 | 1.069 | 9.129 | 14.181 | 0.238 | 2.096 | 0.963 |
| 60.0 | 2.2 | 51.7 | 1.061 | 7.379 | 14.452 | 0.235 | 1.654 | 0.952 |
| 75.0 | 2.1 | 80.1 | 0.730 | 6.773 | 14.991 | 0.096 | 1.644 | 0.859 |
| 90.0 | 0.3 | 101.2 | 0.692 | 7.273 | 13.835 | 0.083 | 1.771 | 0.878 |
| 105.0 | -1.5 | 111.4 | 0.956 | 8.109 | 14.157 | 0.123 | 1.880 | 0.935 |
| 120.0 | -3.6 | 122.6 | 0.928 | 8.452 | 14.211 | 0.177 | 1.886 | 0.967 |
| 135.0 | -4.7 | 134.3 | 1.286 | 9.017 | 14.182 | 0.237 | 1.694 | 0.940 |
| 150.0 | -4.5 | 149.3 | 1.314 | 8.188 | 13.502 | 0.279 | 1.348 | 0.899 |
| 165.0 | -2.9 | 168.9 | 2.086 | 7.510 | 13.565 | 0.304 | 1.005 | 0.798 |
| 180.0 | -1.3 | 526.9 | 1.461 | 9.783 | 13.361 | 0.256 | 2.598 | 0.780 |
| 195.0 | -1.6 | 358.3 | 1.489 | 8.910 | 13.762 | 0.206 | 2.426 | 0.750 |
| 210.0 | -0.4 | 251.6 | 1.339 | 10.250 | 13.697 | 0.144 | 2.370 | 0.766 |
| 225.0 | -0.7 | 256.9 | 1.108 | 11.101 | 13.002 | 0.114 | 2.362 | 0.743 |
| 240.0 | -1.2 | 263.7 | 0.709 | 11.473 | 12.857 | 0.078 | 2.294 | 0.714 |
| 255.0 | -2.0 | 270.9 | 0.568 | 11.435 | 12.885 | 0.062 | 2.193 | 0.692 |
| 270.0 | -2.1 | 278.3 | 0.532 | 10.679 | 12.758 | 0.070 | 2.071 | 0.684 |
| 285.0 | -2.1 | 284.3 | 0.662 | 10.221 | 12.924 | 0.102 | 1.967 | 0.698 |
| 300.0 | -2.4 | 290.2 | 0.849 | 10.201 | 12.994 | 0.142 | 1.900 | 0.726 |
| 315.0 | -2.7 | 241.7 | 1.489 | 12.571 | 13.356 | 0.186 | 2.712 | 0.780 |
| 330.0 | -2.6 | 252.0 | 1.116 | 10.168 | 13.882 | 0.198 | 2.575 | 0.771 |
| 345.0 | -2.7 | 50.0 | 1.511 | 10.133 | 12.961 | 0.233 | 2.117 | 0.782 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.51: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.8 | -40.7 | 1.728 | 9.487 | 13.781 | 0.299 | 1.737 | 0.852 |
| 15.0 | 2.2 | -132.5 | 1.650 | 7.302 | 14.936 | 0.190 | 1.768 | 0.852 |
| 30.0 | 2.6 | -88.1 | 1.557 | 7.846 | 13.372 | 0.232 | 2.521 | 0.889 |
| 45.0 | 3.1 | -99.6 | 1.211 | 7.352 | 14.052 | 0.177 | 2.181 | 0.905 |
| 60.0 | 3.6 | -83.8 | 1.293 | 7.390 | 14.148 | 0.175 | 2.284 | 0.912 |
| 75.0 | 5.1 | 66.4 | 0.890 | 7.292 | 13.850 | 0.165 | 1.569 | 0.949 |
| 90.0 | 4.9 | 89.0 | 0.509 | 6.596 | 14.475 | 0.055 | 1.574 | 0.859 |
| 105.0 | 4.4 | 104.1 | 0.607 | 6.802 | 13.854 | 0.069 | 1.688 | 0.873 |
| 120.0 | 3.6 | 114.9 | 0.806 | 7.417 | 13.737 | 0.107 | 1.711 | 0.895 |
| 135.0 | 3.0 | 122.9 | 1.167 | 7.923 | 14.654 | 0.137 | 1.698 | 0.897 |
| 150.0 | 2.5 | 131.4 | 1.361 | 8.083 | 15.213 | 0.166 | 1.650 | 0.861 |
| 165.0 | 2.2 | 138.9 | 1.451 | 8.689 | 14.174 | 0.191 | 1.581 | 0.814 |
| 180.0 | 2.1 | 149.1 | 1.714 | 6.982 | 12.926 | 0.214 | 1.469 | 0.739 |
| 195.0 | 4.2 | 206.2 | 1.734 | 10.315 | 11.804 | 0.223 | 1.787 | 0.467 |
| 210.0 | 4.3 | 241.2 | 1.589 | 11.455 | 12.838 | 0.166 | 2.337 | 0.625 |
| 225.0 | 4.0 | 251.2 | 1.303 | 11.879 | 12.873 | 0.133 | 2.354 | 0.652 |
| 240.0 | 3.9 | 260.4 | 0.949 | 12.551 | 12.707 | 0.097 | 2.331 | 0.667 |
| 255.0 | 4.0 | 270.1 | 0.494 | 11.979 | 12.488 | 0.059 | 2.246 | 0.657 |
| 270.0 | 4.0 | 278.8 | 0.496 | 11.549 | 12.785 | 0.056 | 2.190 | 0.675 |
| 285.0 | 4.0 | 287.8 | 0.821 | 10.811 | 13.837 | 0.106 | 2.057 | 0.712 |
| 300.0 | 3.9 | 296.2 | 0.889 | 10.428 | 13.482 | 0.167 | 1.888 | 0.754 |
| 315.0 | 3.6 | 301.3 | 1.137 | 10.753 | 13.514 | 0.208 | 1.847 | 0.796 |
| 330.0 | 3.3 | 307.1 | 1.344 | 10.555 | 13.908 | 0.246 | 1.811 | 0.824 |
| 345.0 | 3.0 | 313.4 | 1.609 | 9.966 | 13.881 | 0.277 | 1.775 | 0.837 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.52: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.6 | -33.6 | 1.974 | 10.020 | 13.008 | 0.369 | 1.732 | 0.975 |
| 15.0 | 7.4 | -26.9 | 1.946 | 8.543 | 12.543 | 0.389 | 1.707 | 0.992 |
| 30.0 | 7.4 | -18.7 | 2.196 | 6.803 | 12.726 | 0.404 | 1.619 | 0.998 |
| 45.0 | 7.4 | -8.1 | 1.908 | 6.273 | 12.713 | 0.412 | 1.526 | 1.017 |
| 60.0 | 7.6 | 13.7 | 2.222 | 7.631 | 13.094 | 0.392 | 1.494 | 1.063 |
| 75.0 | 9.9 | 71.8 | 0.763 | 7.277 | 14.625 | 0.131 | 1.431 | 0.947 |
| 90.0 | 9.9 | 88.5 | 0.272 | 6.622 | 13.960 | 0.054 | 1.433 | 0.839 |
| 105.0 | 9.7 | 104.0 | 0.653 | 6.711 | 13.585 | 0.068 | 1.491 | 0.804 |
| 120.0 | 9.0 | 116.0 | 0.921 | 6.909 | 14.509 | 0.096 | 1.412 | 0.806 |
| 135.0 | 8.4 | 127.3 | 1.440 | 7.422 | 14.734 | 0.121 | 1.294 | 0.759 |
| 150.0 | 7.9 | 137.5 | 1.328 | 7.066 | 13.632 | 0.140 | 1.256 | 0.697 |
| 165.0 | 7.7 | 145.8 | 1.358 | 6.727 | 13.768 | 0.150 | 1.304 | 0.668 |
| 180.0 | 7.6 | 157.3 | 1.450 | 6.554 | 13.537 | 0.166 | 1.367 | 0.620 |
| 195.0 | 9.0 | 194.5 | 1.879 | 10.692 | 11.588 | 0.179 | 1.546 | 0.344 |
| 210.0 | 8.9 | 221.5 | 1.886 | 12.003 | 12.201 | 0.172 | 2.144 | 0.407 |
| 225.0 | 8.7 | 238.4 | 1.402 | 10.849 | 12.245 | 0.151 | 2.350 | 0.519 |
| 240.0 | 8.8 | 251.0 | 1.049 | 12.834 | 12.943 | 0.125 | 2.438 | 0.578 |
| 255.0 | 9.1 | 262.7 | 0.845 | 13.052 | 12.455 | 0.091 | 2.453 | 0.609 |
| 270.0 | 9.3 | 274.9 | 0.390 | 12.024 | 12.879 | 0.060 | 2.458 | 0.644 |
| 285.0 | 9.5 | 287.2 | 0.821 | 11.511 | 13.382 | 0.101 | 2.308 | 0.713 |
| 300.0 | 9.4 | 299.6 | 1.026 | 10.424 | 13.500 | 0.202 | 1.946 | 0.795 |
| 315.0 | 8.9 | 310.0 | 1.385 | 9.749 | 13.402 | 0.281 | 1.728 | 0.881 |
| 330.0 | 8.0 | 314.6 | 1.530 | 10.107 | 14.094 | 0.315 | 1.751 | 0.917 |
| 345.0 | 7.7 | 320.9 | 1.852 | 9.246 | 13.491 | 0.346 | 1.730 | 0.941 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.53: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 13.9 | -4.3 | 1.918 | 6.357 | 12.888 | 0.468 | 1.132 | 1.189 |
| 15.0 | 14.0 | 11.3 | 1.989 | 5.710 | 13.016 | 0.464 | 1.153 | 1.214 |
| 30.0 | 14.3 | 27.1 | 1.802 | 6.116 | 13.795 | 0.428 | 1.288 | 1.225 |
| 45.0 | 14.5 | 42.6 | 1.410 | 7.024 | 13.721 | 0.356 | 1.351 | 1.199 |
| 60.0 | 14.7 | 57.4 | 0.926 | 7.787 | 14.367 | 0.252 | 1.376 | 1.127 |
| 75.0 | 15.0 | 73.4 | 0.734 | 6.646 | 14.954 | 0.130 | 1.363 | 0.953 |
| 90.0 | 15.0 | 88.8 | 0.565 | 11.887 | 13.436 | 0.070 | 1.400 | 0.810 |
| 105.0 | 15.0 | 104.3 | 0.606 | 7.423 | 12.820 | 0.087 | 1.400 | 0.712 |
| 120.0 | 14.5 | 117.6 | 0.820 | 7.154 | 13.901 | 0.115 | 1.386 | 0.724 |
| 135.0 | 14.3 | 132.0 | 0.676 | 6.871 | 12.619 | 0.131 | 1.160 | 0.615 |
| 150.0 | 14.2 | 146.8 | 1.302 | 6.622 | 13.308 | 0.147 | 1.030 | 0.513 |
| 165.0 | 14.4 | 162.1 | 0.882 | 6.899 | 11.830 | 0.148 | 0.961 | 0.429 |
| 180.0 | 14.5 | 178.0 | 1.130 | 7.882 | 10.544 | 0.159 | 1.075 | 0.352 |
| 195.0 | 14.6 | 194.4 | 1.253 | 9.949 | 11.775 | 0.145 | 1.374 | 0.352 |
| 210.0 | 14.4 | 212.7 | 1.260 | 10.998 | 11.909 | 0.152 | 1.915 | 0.347 |
| 225.0 | 14.2 | 230.3 | 1.093 | 9.727 | 11.935 | 0.138 | 2.368 | 0.448 |
| 240.0 | 14.3 | 244.5 | 1.048 | 11.352 | 14.124 | 0.131 | 2.648 | 0.495 |
| 255.0 | 14.6 | 258.5 | 0.899 | 12.253 | 12.822 | 0.112 | 2.667 | 0.545 |
| 270.0 | 14.7 | 272.6 | 0.532 | 11.947 | 12.697 | 0.081 | 2.694 | 0.650 |
| 285.0 | 14.8 | 286.5 | 0.659 | 12.715 | 13.302 | 0.105 | 2.558 | 0.763 |
| 300.0 | 14.7 | 300.1 | 1.073 | 11.950 | 13.787 | 0.215 | 2.120 | 0.859 |
| 315.0 | 14.5 | 313.5 | 1.262 | 9.348 | 13.240 | 0.322 | 1.668 | 0.976 |
| 330.0 | 14.2 | 327.0 | 1.716 | 9.109 | 13.263 | 0.400 | 1.392 | 1.075 |
| 345.0 | 13.9 | 341.0 | 2.025 | 7.723 | 12.990 | 0.447 | 1.236 | 1.143 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.54: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.7 | -1.5 | 2.384 | 5.426 | 13.370 | 0.506 | 1.085 | 1.331 |
| 15.0 | 19.7 | 13.8 | 1.957 | 6.739 | 13.774 | 0.496 | 1.192 | 1.344 |
| 30.0 | 19.8 | 29.0 | 2.023 | 6.729 | 13.815 | 0.457 | 1.335 | 1.336 |
| 45.0 | 19.8 | 44.0 | 1.581 | 7.793 | 14.252 | 0.374 | 1.432 | 1.277 |
| 60.0 | 19.9 | 58.6 | 0.905 | 8.358 | 14.506 | 0.262 | 1.396 | 1.194 |
| 75.0 | 20.1 | 73.8 | 0.631 | 7.298 | 14.835 | 0.137 | 1.415 | 0.971 |
| 90.0 | 20.1 | 89.0 | 0.431 | 8.435 | 13.451 | 0.090 | 1.376 | 0.772 |
| 105.0 | 20.1 | 104.1 | 1.503 | 13.930 | 12.487 | 0.119 | 1.436 | 0.608 |
| 120.0 | 19.9 | 118.6 | 0.636 | 7.302 | 12.584 | 0.142 | 1.620 | 0.698 |
| 135.0 | 19.9 | 133.6 | 0.878 | 8.857 | 11.805 | 0.150 | 1.228 | 0.518 |
| 150.0 | 19.8 | 148.5 | 1.009 | 8.147 | 11.817 | 0.177 | 1.090 | 0.465 |
| 165.0 | 19.8 | 163.7 | 0.983 | 6.108 | 11.421 | 0.191 | 0.918 | 0.421 |
| 180.0 | 20.0 | 179.4 | 0.945 | 6.772 | 11.032 | 0.190 | 1.002 | 0.386 |
| 195.0 | 19.9 | 194.4 | 1.031 | 7.979 | 10.253 | 0.168 | 1.282 | 0.444 |
| 210.0 | 19.9 | 209.6 | 0.766 | 8.950 | 10.237 | 0.145 | 1.660 | 0.537 |
| 225.0 | 19.8 | 225.8 | 1.073 | 10.086 | 11.526 | 0.141 | 2.167 | 0.501 |
| 240.0 | 19.7 | 241.8 | 0.941 | 10.263 | 12.997 | 0.146 | 2.783 | 0.495 |
| 255.0 | 19.9 | 256.9 | 1.029 | 10.993 | 12.625 | 0.127 | 2.827 | 0.572 |
| 270.0 | 19.9 | 271.6 | 0.639 | 12.839 | 12.569 | 0.099 | 2.841 | 0.697 |
| 285.0 | 20.0 | 286.0 | 0.628 | 13.063 | 13.585 | 0.109 | 2.760 | 0.855 |
| 300.0 | 19.9 | 300.2 | 1.037 | 11.992 | 13.273 | 0.229 | 2.257 | 0.939 |
| 315.0 | 19.9 | 314.3 | 1.401 | 10.615 | 13.515 | 0.350 | 1.737 | 1.089 |
| 330.0 | 19.8 | 328.7 | 1.737 | 7.775 | 13.469 | 0.436 | 1.343 | 1.210 |
| 345.0 | 19.7 | 343.5 | 2.354 | 6.184 | 13.406 | 0.487 | 1.132 | 1.279 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.55: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.0 | -0.6 | 2.147 | 6.239 | 14.121 | 0.536 | 1.172 | 1.560 |
| 15.0 | 25.0 | 14.6 | 2.370 | 7.133 | 14.507 | 0.526 | 1.268 | 1.556 |
| 30.0 | 25.0 | 29.7 | 2.056 | 7.550 | 14.787 | 0.489 | 1.411 | 1.530 |
| 45.0 | 25.0 | 44.6 | 1.558 | 7.771 | 14.806 | 0.401 | 1.517 | 1.425 |
| 60.0 | 25.0 | 59.2 | 1.179 | 8.712 | 16.404 | 0.277 | 1.507 | 1.288 |
| 75.0 | 25.1 | 74.2 | 0.581 | 7.602 | 14.450 | 0.146 | 1.556 | 1.015 |
| 90.0 | 25.2 | 89.2 | 0.864 | 14.935 | 14.077 | 0.111 | 1.527 | 0.766 |
| 105.0 | 25.1 | 104.1 | 1.343 | 9.273 | 13.805 | 0.145 | 1.517 | 0.560 |
| 120.0 | 25.0 | 119.0 | 0.933 | 10.979 | 12.878 | 0.174 | 1.923 | 0.665 |
| 135.0 | 24.8 | 133.8 | 1.038 | 9.666 | 13.266 | 0.209 | 1.978 | 0.574 |
| 150.0 | 24.8 | 148.3 | 0.959 | 8.812 | 11.245 | 0.208 | 1.014 | 0.468 |
| 165.0 | 25.6 | 164.1 | 1.084 | 5.330 | 11.227 | 0.233 | 0.791 | 0.399 |
| 180.0 | 25.9 | 179.3 | 0.908 | 5.096 | 10.128 | 0.173 | 0.611 | 0.280 |
| 195.0 | 25.7 | 196.3 | 1.298 | 8.828 | 10.282 | 0.230 | 1.380 | 0.381 |
| 210.0 | 25.1 | 210.4 | 0.866 | 8.647 | 10.215 | 0.183 | 1.674 | 0.516 |
| 225.0 | 24.9 | 225.0 | 0.907 | 9.844 | 10.093 | 0.173 | 2.258 | 0.706 |
| 240.0 | 24.9 | 240.5 | 1.124 | 11.969 | 12.290 | 0.162 | 2.741 | 0.594 |
| 255.0 | 25.1 | 256.0 | 0.933 | 15.656 | 11.874 | 0.143 | 2.872 | 0.669 |
| 270.0 | 25.0 | 271.1 | 0.560 | 12.363 | 12.191 | 0.115 | 2.927 | 0.788 |
| 285.0 | 25.1 | 285.8 | 0.656 | 14.234 | 13.853 | 0.119 | 2.929 | 0.955 |
| 300.0 | 25.1 | 300.1 | 0.996 | 12.430 | 13.630 | 0.240 | 2.320 | 1.040 |
| 315.0 | 25.1 | 314.7 | 1.589 | 10.862 | 14.273 | 0.374 | 1.835 | 1.244 |
| 330.0 | 25.0 | 329.4 | 1.928 | 9.084 | 14.402 | 0.465 | 1.463 | 1.421 |
| 345.0 | 25.0 | 344.3 | 2.306 | 6.798 | 14.239 | 0.514 | 1.228 | 1.511 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.56: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 14.0$ m and $T_p = 18.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.2 | -0.2 | 2.437 | 7.681 | 15.424 | 0.558 | 1.296 | 1.847 |
| 15.0 | 30.2 | 15.0 | 2.143 | 7.803 | 15.689 | 0.545 | 1.398 | 1.838 |
| 30.0 | 30.2 | 30.0 | 2.133 | 9.559 | 15.890 | 0.508 | 1.550 | 1.788 |
| 45.0 | 30.2 | 44.9 | 1.686 | 8.835 | 15.470 | 0.423 | 1.662 | 1.610 |
| 60.0 | 30.2 | 59.6 | 1.078 | 8.835 | 16.128 | 0.295 | 1.661 | 1.410 |
| 75.0 | 30.2 | 74.3 | 0.735 | 8.486 | 14.877 | 0.156 | 1.762 | 1.067 |
| 90.0 | 30.2 | 89.3 | 0.752 | 8.385 | 13.435 | 0.128 | 1.695 | 0.795 |
| 105.0 | 30.2 | 104.1 | 1.758 | 11.602 | 12.706 | 0.176 | 1.624 | 0.558 |
| 120.0 | 30.0 | 119.4 | 0.717 | 8.301 | 11.568 | 0.206 | 2.271 | 0.588 |
| 135.0 | 29.8 | 133.7 | 1.021 | 9.379 | 11.244 | 0.249 | 1.981 | 0.511 |
| 150.0 | 30.0 | 148.1 | 1.107 | 8.893 | 10.781 | 0.263 | 1.263 | 0.485 |
| 165.0 | 30.2 | 162.5 | 1.115 | 6.957 | 10.662 | 0.326 | 1.017 | 0.452 |
| 180.0 | 30.8 | 177.9 | 1.552 | 6.438 | 10.030 | 0.322 | 0.900 | 0.441 |
| 195.0 | 31.6 | 194.5 | 1.162 | 6.037 | 10.151 | 0.273 | 1.147 | 0.421 |
| 210.0 | 30.8 | 210.9 | 1.494 | 12.870 | 10.083 | 0.259 | 1.736 | 0.514 |
| 225.0 | 30.1 | 225.2 | 0.890 | 8.989 | 10.074 | 0.210 | 2.063 | 0.686 |
| 240.0 | 30.0 | 240.1 | 1.071 | 13.207 | 10.168 | 0.194 | 2.658 | 0.717 |
| 255.0 | 30.1 | 255.5 | 1.002 | 14.996 | 11.189 | 0.169 | 2.738 | 0.796 |
| 270.0 | 30.1 | 270.7 | 0.621 | 12.403 | 12.025 | 0.135 | 2.954 | 0.892 |
| 285.0 | 30.2 | 285.5 | 0.689 | 13.093 | 13.866 | 0.130 | 2.936 | 1.061 |
| 300.0 | 30.2 | 300.2 | 1.001 | 12.941 | 13.825 | 0.256 | 2.477 | 1.131 |
| 315.0 | 30.2 | 314.9 | 1.533 | 11.298 | 15.101 | 0.396 | 1.969 | 1.463 |
| 330.0 | 30.2 | 329.7 | 2.014 | 8.539 | 15.875 | 0.490 | 1.576 | 1.684 |
| 345.0 | 30.2 | 344.7 | 2.375 | 8.582 | 15.557 | 0.536 | 1.371 | 1.800 |
| Wind at 56.4 knots (29.0 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.57: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.5 | -110.6 | 1.863 | 11.493 | 13.217 | 0.299 | 3.032 | 0.805 |
| 15.0 | -2.8 | 189.5 | 2.545 | 10.582 | 12.839 | 0.339 | 1.786 | 0.821 |
| 30.0 | -4.0 | -145.1 | 1.795 | 9.881 | 13.237 | 0.326 | 2.207 | 0.958 |
| 45.0 | 2.0 | 30.6 | 1.247 | 7.842 | 13.151 | 0.321 | 1.615 | 1.174 |
| 60.0 | 3.8 | 54.5 | 1.109 | 7.620 | 15.805 | 0.240 | 1.593 | 1.108 |
| 75.0 | 2.8 | 85.5 | 0.802 | 7.708 | 14.422 | 0.088 | 1.582 | 0.911 |
| 90.0 | 0.3 | 106.0 | 0.973 | 8.446 | 14.264 | 0.111 | 1.733 | 0.965 |
| 105.0 | -2.3 | 118.7 | 1.104 | 8.295 | 14.714 | 0.159 | 1.820 | 1.059 |
| 120.0 | -4.4 | 132.0 | 1.199 | 8.318 | 14.866 | 0.227 | 1.697 | 1.070 |
| 135.0 | -5.1 | 146.2 | 1.664 | 8.514 | 14.873 | 0.293 | 1.468 | 1.017 |
| 150.0 | -4.3 | 160.0 | 1.580 | 9.530 | 13.992 | 0.327 | 1.245 | 0.885 |
| 165.0 | -2.8 | 173.3 | 1.945 | 9.178 | 14.396 | 0.339 | 1.309 | 0.747 |
| 180.0 | 0.4 | 310.9 | 1.886 | 11.457 | 13.440 | 0.276 | 2.984 | 0.807 |
| 195.0 | 1.1 | 234.8 | 1.943 | 12.439 | 12.369 | 0.233 | 2.751 | 0.736 |
| 210.0 | -0.2 | 245.4 | 1.686 | 13.294 | 13.530 | 0.205 | 2.755 | 0.760 |
| 225.0 | -0.7 | 253.7 | 1.420 | 12.976 | 12.897 | 0.153 | 2.722 | 0.786 |
| 240.0 | -1.1 | 261.7 | 1.061 | 12.870 | 12.886 | 0.108 | 2.617 | 0.764 |
| 255.0 | -2.3 | 269.6 | 1.312 | 12.025 | 12.569 | 0.091 | 2.483 | 0.778 |
| 270.0 | -2.8 | 277.2 | 0.782 | 11.564 | 13.102 | 0.087 | 2.304 | 0.790 |
| 285.0 | -3.5 | 283.1 | 0.737 | 12.396 | 12.477 | 0.118 | 2.184 | 0.832 |
| 300.0 | -3.5 | 288.4 | 1.130 | 11.630 | 12.303 | 0.165 | 2.103 | 0.896 |
| 315.0 | -3.9 | 295.7 | 1.549 | 17.495 | 15.891 | 0.212 | 2.139 | 0.944 |
| 330.0 | -0.6 | 141.1 | 1.477 | 12.916 | 13.776 | 0.204 | 3.268 | 0.822 |
| 345.0 | 0.6 | 141.0 | 1.714 | 12.461 | 12.392 | 0.237 | 3.038 | 0.768 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.58: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 1.7 | -41.7 | 1.955 | 12.375 | 12.976 | 0.308 | 2.011 | 1.008 |
| 15.0 | 1.3 | -140.8 | 1.887 | 7.964 | 14.629 | 0.231 | 1.692 | 0.946 |
| 30.0 | 1.9 | -124.7 | 2.156 | 7.242 | 13.682 | 0.216 | 2.160 | 0.979 |
| 45.0 | 2.6 | -114.2 | 1.686 | 6.923 | 14.417 | 0.190 | 2.284 | 0.997 |
| 60.0 | 3.5 | -61.9 | 1.683 | 8.245 | 13.518 | 0.239 | 3.453 | 1.060 |
| 75.0 | 5.8 | 71.4 | 1.004 | 8.178 | 15.302 | 0.146 | 1.454 | 0.981 |
| 90.0 | 5.0 | 94.4 | 0.450 | 7.719 | 14.330 | 0.065 | 1.592 | 0.887 |
| 105.0 | 4.3 | 108.2 | 1.264 | 7.977 | 14.033 | 0.100 | 1.609 | 0.914 |
| 120.0 | 3.4 | 118.0 | 1.460 | 9.646 | 14.194 | 0.131 | 1.594 | 0.963 |
| 135.0 | 2.5 | 127.1 | 1.858 | 9.669 | 14.370 | 0.165 | 1.570 | 0.994 |
| 150.0 | 1.9 | 134.9 | 1.961 | 10.050 | 15.333 | 0.194 | 1.526 | 0.989 |
| 165.0 | 1.5 | 143.3 | 1.853 | 10.270 | 15.559 | 0.222 | 1.473 | 0.955 |
| 180.0 | 1.3 | 153.9 | 1.777 | 9.059 | 13.621 | 0.251 | 1.395 | 0.873 |
| 195.0 | 1.8 | 168.9 | 2.877 | 12.551 | 12.459 | 0.277 | 1.349 | 0.715 |
| 210.0 | 4.5 | 235.3 | 2.045 | 13.873 | 12.351 | 0.212 | 2.685 | 0.623 |
| 225.0 | 4.1 | 248.3 | 1.618 | 13.586 | 12.104 | 0.173 | 2.689 | 0.679 |
| 240.0 | 3.6 | 258.0 | 1.205 | 13.023 | 12.557 | 0.139 | 2.646 | 0.714 |
| 255.0 | 3.6 | 268.2 | 1.128 | 12.530 | 12.778 | 0.097 | 2.561 | 0.725 |
| 270.0 | 3.5 | 276.9 | 0.641 | 12.727 | 11.934 | 0.078 | 2.454 | 0.746 |
| 285.0 | 3.6 | 285.8 | 0.687 | 11.869 | 11.913 | 0.092 | 2.314 | 0.805 |
| 300.0 | 3.0 | 292.4 | 0.794 | 11.941 | 12.198 | 0.139 | 2.144 | 0.885 |
| 315.0 | 2.6 | 298.6 | 1.355 | 12.069 | 12.597 | 0.192 | 2.082 | 0.997 |
| 330.0 | 2.3 | 306.2 | 1.412 | 11.889 | 12.648 | 0.240 | 1.998 | 1.025 |
| 345.0 | 2.0 | 312.9 | 1.796 | 11.296 | 12.282 | 0.282 | 1.977 | 1.052 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.59: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 6.9 | -37.5 | 2.234 | 10.923 | 12.909 | 0.368 | 2.050 | 1.125 |
| 15.0 | 6.8 | -31.4 | 2.298 | 9.608 | 12.949 | 0.394 | 2.026 | 1.110 |
| 30.0 | 6.8 | -26.2 | 2.099 | 8.903 | 13.438 | 0.408 | 2.009 | 1.097 |
| 45.0 | 7.7 | -78.8 | 1.730 | 8.230 | 12.674 | 0.247 | 2.943 | 0.950 |
| 60.0 | 6.9 | -10.9 | 1.963 | 9.174 | 13.502 | 0.414 | 2.095 | 1.127 |
| 75.0 | 7.6 | 24.5 | 1.774 | 9.726 | 15.096 | 0.372 | 1.947 | 1.174 |
| 90.0 | 9.7 | 88.3 | 0.337 | 8.979 | 13.944 | 0.062 | 1.525 | 0.849 |
| 105.0 | 9.5 | 103.2 | 1.041 | 10.137 | 13.445 | 0.090 | 1.520 | 0.780 |
| 120.0 | 8.7 | 114.3 | 1.020 | 11.182 | 12.414 | 0.107 | 1.314 | 0.792 |
| 135.0 | 8.1 | 125.0 | 1.137 | 7.917 | 13.180 | 0.141 | 1.140 | 0.769 |
| 150.0 | 7.6 | 134.4 | 1.487 | 7.649 | 15.565 | 0.161 | 1.055 | 0.753 |
| 165.0 | 7.3 | 144.5 | 1.397 | 7.036 | 14.469 | 0.181 | 1.110 | 0.749 |
| 180.0 | 7.1 | 153.9 | 1.485 | 6.921 | 13.917 | 0.194 | 1.157 | 0.736 |
| 195.0 | 7.0 | 165.7 | 2.084 | 8.635 | 12.399 | 0.211 | 1.121 | 0.665 |
| 210.0 | 8.8 | 220.9 | 2.904 | 16.300 | 11.913 | 0.218 | 2.457 | 0.512 |
| 225.0 | 8.8 | 240.1 | 2.061 | 13.992 | 11.521 | 0.181 | 2.703 | 0.554 |
| 240.0 | 8.8 | 251.8 | 1.607 | 13.529 | 13.043 | 0.157 | 2.780 | 0.620 |
| 255.0 | 8.9 | 263.4 | 1.023 | 13.737 | 11.985 | 0.125 | 2.770 | 0.683 |
| 270.0 | 8.9 | 275.4 | 1.053 | 13.642 | 12.187 | 0.099 | 2.729 | 0.747 |
| 285.0 | 9.1 | 286.9 | 1.375 | 13.160 | 12.642 | 0.109 | 2.574 | 0.865 |
| 300.0 | 8.9 | 298.5 | 1.199 | 12.090 | 12.619 | 0.189 | 2.210 | 0.935 |
| 315.0 | 7.9 | 306.1 | 1.126 | 12.367 | 12.643 | 0.251 | 2.034 | 1.003 |
| 330.0 | 7.3 | 310.9 | 1.513 | 11.875 | 12.838 | 0.290 | 2.049 | 1.091 |
| 345.0 | 7.1 | 317.3 | 1.946 | 11.703 | 12.990 | 0.338 | 2.020 | 1.133 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.60: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 11.9 | -21.9 | 2.290 | 14.703 | 13.142 | 0.491 | 1.862 | 1.408 |
| 15.0 | 11.7 | -12.9 | 2.642 | 10.438 | 13.954 | 0.512 | 1.815 | 1.409 |
| 30.0 | 11.8 | 0.1 | 2.658 | 9.545 | 14.276 | 0.522 | 1.725 | 1.439 |
| 45.0 | 12.1 | 19.1 | 2.106 | 9.350 | 13.426 | 0.486 | 1.640 | 1.475 |
| 60.0 | 12.7 | 42.5 | 1.368 | 8.565 | 14.110 | 0.368 | 1.423 | 1.402 |
| 75.0 | 14.8 | 72.7 | 0.618 | 8.506 | 14.868 | 0.139 | 1.489 | 0.985 |
| 90.0 | 14.7 | 88.3 | 0.398 | 9.592 | 13.365 | 0.080 | 1.585 | 0.774 |
| 105.0 | 14.6 | 102.6 | 1.137 | 10.980 | 15.149 | 0.101 | 1.580 | 0.668 |
| 120.0 | 13.9 | 115.1 | 0.789 | 9.337 | 14.601 | 0.127 | 1.369 | 0.667 |
| 135.0 | 13.5 | 129.1 | 0.941 | 9.607 | 13.750 | 0.152 | 1.285 | 0.625 |
| 150.0 | 13.4 | 143.3 | 0.992 | 9.607 | 12.493 | 0.169 | 1.212 | 0.562 |
| 165.0 | 13.2 | 158.7 | 1.913 | 9.354 | 13.460 | 0.196 | 1.217 | 0.505 |
| 180.0 | 14.0 | 176.8 | 1.165 | 9.156 | 9.816 | 0.188 | 1.254 | 0.423 |
| 195.0 | 13.9 | 196.1 | 2.334 | 15.831 | 10.387 | 0.206 | 1.844 | 0.462 |
| 210.0 | 14.0 | 215.4 | 1.265 | 11.739 | 11.901 | 0.186 | 2.300 | 0.491 |
| 225.0 | 14.1 | 231.1 | 1.449 | 11.771 | 12.814 | 0.165 | 2.552 | 0.570 |
| 240.0 | 14.2 | 245.1 | 1.562 | 20.577 | 11.872 | 0.159 | 2.906 | 0.642 |
| 255.0 | 14.3 | 259.0 | 1.584 | 26.679 | 11.638 | 0.153 | 3.102 | 0.744 |
| 270.0 | 14.4 | 273.2 | 0.735 | 13.742 | 11.748 | 0.103 | 2.986 | 0.816 |
| 285.0 | 14.5 | 286.6 | 0.870 | 13.415 | 12.354 | 0.108 | 2.875 | 0.958 |
| 300.0 | 14.4 | 300.2 | 1.682 | 11.904 | 12.821 | 0.214 | 2.337 | 0.948 |
| 315.0 | 14.2 | 312.9 | 1.204 | 11.130 | 12.720 | 0.320 | 1.959 | 1.180 |
| 330.0 | 13.3 | 324.8 | 1.850 | 13.852 | 13.238 | 0.411 | 1.767 | 1.269 |
| 345.0 | 12.1 | 330.4 | 2.088 | 11.238 | 13.235 | 0.456 | 1.838 | 1.340 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.61: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.2 | -2.9 | 2.491 | 7.578 | 14.042 | 0.554 | 1.463 | 1.527 |
| 15.0 | 19.2 | 12.2 | 2.235 | 8.062 | 13.910 | 0.544 | 1.489 | 1.534 |
| 30.0 | 19.3 | 27.5 | 2.105 | 9.003 | 14.264 | 0.497 | 1.502 | 1.523 |
| 45.0 | 19.4 | 42.5 | 1.495 | 9.585 | 14.414 | 0.400 | 1.476 | 1.461 |
| 60.0 | 19.5 | 57.0 | 1.058 | 9.338 | 14.525 | 0.283 | 1.266 | 1.307 |
| 75.0 | 19.9 | 73.4 | 0.967 | 9.128 | 16.329 | 0.148 | 1.688 | 1.020 |
| 90.0 | 19.8 | 88.3 | 1.275 | 17.362 | 13.647 | 0.106 | 1.816 | 0.768 |
| 105.0 | 19.6 | 102.9 | 5.419 | 12.014 | 12.998 | 0.194 | 1.755 | 0.660 |
| 120.0 | 19.5 | 117.0 | 0.888 | 13.177 | 12.345 | 0.165 | 1.627 | 0.685 |
| 135.0 | 19.3 | 131.9 | 0.839 | 12.383 | 12.630 | 0.185 | 1.598 | 0.621 |
| 150.0 | 19.2 | 146.9 | 0.975 | 11.272 | 11.784 | 0.234 | 1.602 | 0.615 |
| 165.0 | 19.6 | 163.2 | 1.450 | 9.736 | 11.608 | 0.256 | 1.302 | 0.520 |
| 180.0 | 19.7 | 178.9 | 0.910 | 7.909 | 9.996 | 0.219 | 1.183 | 0.532 |
| 195.0 | 19.6 | 195.3 | 1.322 | 11.014 | 10.109 | 0.228 | 1.756 | 0.600 |
| 210.0 | 19.5 | 210.8 | 1.800 | 16.373 | 10.156 | 0.200 | 2.047 | 0.644 |
| 225.0 | 19.3 | 227.1 | 1.322 | 12.327 | 13.517 | 0.183 | 2.501 | 0.651 |
| 240.0 | 19.5 | 242.2 | 1.375 | 16.786 | 13.158 | 0.169 | 2.918 | 0.738 |
| 255.0 | 19.7 | 257.3 | 1.044 | 15.971 | 13.216 | 0.145 | 3.099 | 0.863 |
| 270.0 | 19.7 | 272.1 | 0.718 | 14.053 | 12.062 | 0.113 | 3.208 | 0.977 |
| 285.0 | 19.7 | 286.3 | 0.635 | 13.438 | 12.892 | 0.115 | 3.177 | 1.115 |
| 300.0 | 19.7 | 300.5 | 1.063 | 13.408 | 13.139 | 0.224 | 2.582 | 1.051 |
| 315.0 | 19.6 | 314.1 | 1.418 | 14.610 | 13.137 | 0.352 | 2.079 | 1.259 |
| 330.0 | 19.4 | 328.2 | 2.095 | 10.843 | 13.700 | 0.455 | 1.759 | 1.361 |
| 345.0 | 19.3 | 342.5 | 2.228 | 9.087 | 13.842 | 0.524 | 1.518 | 1.466 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.62: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 24.8 | -1.3 | 2.620 | 8.612 | 14.247 | 0.586 | 1.589 | 1.692 |
| 15.0 | 24.7 | 13.8 | 2.481 | 8.994 | 14.379 | 0.574 | 1.600 | 1.679 |
| 30.0 | 24.8 | 29.0 | 2.403 | 9.379 | 15.206 | 0.524 | 1.626 | 1.643 |
| 45.0 | 24.8 | 43.7 | 1.745 | 9.245 | 15.511 | 0.424 | 1.557 | 1.545 |
| 60.0 | 24.7 | 58.0 | 1.971 | 10.699 | 15.792 | 0.299 | 1.336 | 1.381 |
| 75.0 | 24.9 | 73.6 | 0.791 | 8.936 | 14.870 | 0.162 | 1.835 | 1.094 |
| 90.0 | 24.8 | 88.5 | 7.283 | 13.067 | 14.326 | 0.206 | 1.859 | 0.802 |
| 105.0 | 24.7 | 103.0 | 6.862 | 20.279 | 13.905 | 0.237 | 1.988 | 0.744 |
| 120.0 | 24.6 | 118.0 | 1.344 | 12.854 | 12.888 | 0.209 | 1.823 | 0.726 |
| 135.0 | 24.6 | 133.1 | 1.128 | 11.342 | 11.662 | 0.243 | 1.879 | 0.655 |
| 150.0 | 24.5 | 147.2 | 1.072 | 10.030 | 10.847 | 0.248 | 1.244 | 0.582 |
| 165.0 | 25.0 | 162.8 | 1.510 | 10.193 | 10.880 | 0.247 | 0.886 | 0.512 |
| 180.0 | 26.0 | 179.2 | 0.891 | 6.459 | 10.071 | 0.225 | 0.695 | 0.402 |
| 195.0 | 25.6 | 194.8 | 0.830 | 7.159 | 10.062 | 0.213 | 1.051 | 0.507 |
| 210.0 | 24.8 | 210.2 | 1.440 | 10.931 | 10.072 | 0.228 | 1.877 | 0.732 |
| 225.0 | 24.8 | 224.8 | 1.134 | 11.457 | 10.159 | 0.190 | 2.021 | 0.831 |
| 240.0 | 24.7 | 240.6 | 1.495 | 16.484 | 10.493 | 0.196 | 2.844 | 0.861 |
| 255.0 | 24.9 | 256.1 | 1.310 | 15.274 | 11.637 | 0.165 | 3.173 | 1.092 |
| 270.0 | 24.8 | 271.4 | 0.631 | 14.089 | 12.163 | 0.128 | 3.390 | 1.207 |
| 285.0 | 24.9 | 285.8 | 0.586 | 13.016 | 12.910 | 0.120 | 3.297 | 1.375 |
| 300.0 | 24.9 | 300.4 | 1.002 | 13.504 | 13.055 | 0.239 | 2.682 | 1.217 |
| 315.0 | 24.9 | 314.9 | 1.614 | 14.044 | 14.817 | 0.382 | 2.293 | 1.348 |
| 330.0 | 24.8 | 329.3 | 2.217 | 10.761 | 14.754 | 0.492 | 1.806 | 1.516 |
| 345.0 | 24.8 | 343.9 | 2.411 | 9.562 | 14.718 | 0.556 | 1.685 | 1.644 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.63: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 20.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.1 | -0.5 | 2.716 | 8.527 | 15.109 | 0.610 | 1.739 | 1.956 |
| 15.0 | 30.0 | 14.6 | 2.775 | 9.658 | 15.102 | 0.604 | 1.731 | 1.941 |
| 30.0 | 30.0 | 29.6 | 2.253 | 11.856 | 15.522 | 0.549 | 1.760 | 1.833 |
| 45.0 | 30.0 | 44.4 | 1.868 | 10.270 | 16.598 | 0.449 | 1.653 | 1.671 |
| 60.0 | 29.9 | 58.8 | 1.350 | 9.481 | 16.458 | 0.308 | 1.412 | 1.427 |
| 75.0 | 30.0 | 73.8 | 1.311 | 12.622 | 15.106 | 0.176 | 2.053 | 1.180 |
| 90.0 | 29.9 | 88.6 | 6.060 | 19.979 | 13.338 | 0.195 | 2.045 | 0.867 |
| 105.0 | 29.8 | 103.3 | 2.814 | 12.244 | 15.171 | 0.216 | 2.102 | 0.767 |
| 120.0 | 29.6 | 118.4 | 1.452 | 11.161 | 12.947 | 0.270 | 2.325 | 0.748 |
| 135.0 | 29.4 | 132.7 | 1.385 | 10.077 | 12.135 | 0.299 | 1.897 | 0.688 |
| 150.0 | 29.2 | 146.3 | 1.144 | 8.977 | 10.600 | 0.300 | 1.271 | 0.676 |
| 165.0 | 29.4 | 159.7 | 1.737 | 11.321 | 10.462 | 0.375 | 1.160 | 0.715 |
| 180.0 | 30.3 | 176.7 | 1.693 | 7.491 | 9.919 | 0.365 | 1.023 | 0.611 |
| 195.0 | 30.6 | 196.2 | 1.836 | 16.777 | 10.377 | 0.436 | 2.076 | 0.741 |
| 210.0 | 30.9 | 210.9 | 1.245 | 9.735 | 10.278 | 0.303 | 1.795 | 0.739 |
| 225.0 | 30.0 | 224.9 | 0.997 | 9.429 | 10.049 | 0.228 | 1.892 | 0.955 |
| 240.0 | 29.7 | 240.1 | 1.719 | 14.940 | 10.285 | 0.248 | 2.914 | 0.977 |
| 255.0 | 29.6 | 254.9 | 5.271 | 19.471 | 10.795 | 0.341 | 3.114 | 1.342 |
| 270.0 | 29.9 | 270.8 | 1.030 | 13.825 | 11.842 | 0.153 | 3.439 | 1.388 |
| 285.0 | 30.0 | 285.2 | 0.702 | 13.345 | 13.086 | 0.158 | 3.253 | 1.818 |
| 300.0 | 30.1 | 300.4 | 1.186 | 14.718 | 13.336 | 0.250 | 2.671 | 1.224 |
| 315.0 | 30.1 | 315.1 | 1.618 | 13.870 | 15.779 | 0.402 | 2.367 | 1.477 |
| 330.0 | 30.1 | 329.8 | 2.054 | 12.453 | 16.018 | 0.517 | 2.097 | 1.728 |
| 345.0 | 30.1 | 344.6 | 2.510 | 10.446 | 16.226 | 0.583 | 1.820 | 1.887 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.64: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.7 | -1.3 | 0.692 | 7.424 | 11.512 | 0.177 | 1.136 | 0.811 |
| 15.0 | 0.7 | 12.9 | 0.671 | 5.319 | 11.471 | 0.175 | 1.090 | 0.786 |
| 30.0 | 1.7 | 26.6 | 0.603 | 5.925 | 11.898 | 0.162 | 1.075 | 0.751 |
| 45.0 | 2.5 | 41.8 | 0.554 | 5.870 | 12.190 | 0.137 | 1.055 | 0.694 |
| 60.0 | 2.6 | 58.7 | 0.714 | 6.053 | 11.917 | 0.094 | 0.971 | 0.590 |
| 75.0 | 1.7 | 77.0 | 0.333 | 6.309 | 10.999 | 0.059 | 0.922 | 0.454 |
| 90.0 | 0.9 | 94.9 | 0.461 | 6.730 | 10.727 | 0.052 | 0.944 | 0.414 |
| 105.0 | 0.1 | 109.7 | 0.439 | 7.904 | 10.890 | 0.057 | 0.981 | 0.457 |
| 120.0 | -1.2 | 125.3 | 0.477 | 6.386 | 11.127 | 0.078 | 1.030 | 0.542 |
| 135.0 | -2.4 | 140.3 | 0.543 | 6.219 | 11.397 | 0.113 | 0.964 | 0.591 |
| 150.0 | -2.9 | 154.1 | 0.605 | 5.562 | 11.399 | 0.136 | 0.783 | 0.552 |
| 165.0 | -2.8 | 165.8 | 0.650 | 5.475 | 11.375 | 0.148 | 0.650 | 0.480 |
| 180.0 | -2.1 | 177.6 | 0.720 | 6.140 | 10.996 | 0.158 | 0.740 | 0.417 |
| 195.0 | -1.0 | 191.8 | 0.897 | 7.797 | 10.766 | 0.153 | 1.029 | 0.377 |
| 210.0 | 0.1 | 209.9 | 0.822 | 8.483 | 10.957 | 0.132 | 1.355 | 0.391 |
| 225.0 | 0.3 | 229.9 | 0.624 | 8.855 | 11.343 | 0.096 | 1.559 | 0.423 |
| 240.0 | -0.1 | 248.0 | 0.384 | 8.944 | 11.476 | 0.068 | 1.681 | 0.494 |
| 255.0 | -0.9 | 262.0 | 0.361 | 8.755 | 10.699 | 0.045 | 1.611 | 0.521 |
| 270.0 | -1.6 | 274.8 | 0.252 | 8.480 | 10.773 | 0.039 | 1.518 | 0.553 |
| 285.0 | -2.4 | 286.8 | 0.317 | 7.905 | 10.872 | 0.051 | 1.363 | 0.601 |
| 300.0 | -3.7 | 302.0 | 0.391 | 7.682 | 11.004 | 0.090 | 1.212 | 0.719 |
| 315.0 | -3.6 | 316.8 | 0.750 | 7.524 | 11.505 | 0.127 | 1.127 | 0.787 |
| 330.0 | -2.9 | 331.7 | 0.575 | 7.686 | 11.286 | 0.151 | 1.116 | 0.812 |
| 345.0 | -1.8 | 345.9 | 0.651 | 8.017 | 11.428 | 0.167 | 1.124 | 0.817 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.65: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 2.6 | -22.8 | 0.808 | 7.814 | 11.524 | 0.171 | 1.248 | 0.793 |
| 15.0 | 2.9 | -7.4 | 0.817 | 6.982 | 11.385 | 0.192 | 1.192 | 0.819 |
| 30.0 | 3.4 | 9.2 | 0.876 | 6.828 | 11.498 | 0.195 | 1.130 | 0.825 |
| 45.0 | 4.1 | 27.0 | 0.679 | 5.809 | 11.478 | 0.175 | 1.040 | 0.789 |
| 60.0 | 4.7 | 48.0 | 0.505 | 6.026 | 11.742 | 0.126 | 0.931 | 0.689 |
| 75.0 | 4.9 | 66.8 | 0.348 | 5.790 | 11.635 | 0.072 | 0.874 | 0.547 |
| 90.0 | 4.6 | 83.1 | 0.301 | 5.996 | 10.854 | 0.040 | 0.927 | 0.423 |
| 105.0 | 4.3 | 97.1 | 0.336 | 7.214 | 10.461 | 0.041 | 0.899 | 0.383 |
| 120.0 | 4.0 | 108.9 | 0.290 | 7.110 | 10.582 | 0.046 | 0.813 | 0.401 |
| 135.0 | 3.5 | 121.0 | 0.378 | 6.505 | 10.990 | 0.060 | 0.693 | 0.425 |
| 150.0 | 3.1 | 133.4 | 0.446 | 6.065 | 11.307 | 0.080 | 0.589 | 0.450 |
| 165.0 | 2.8 | 145.1 | 0.539 | 5.650 | 11.511 | 0.102 | 0.524 | 0.480 |
| 180.0 | 2.6 | 156.9 | 0.670 | 5.325 | 11.552 | 0.119 | 0.481 | 0.494 |
| 195.0 | 2.5 | 169.3 | 0.802 | 5.739 | 11.412 | 0.132 | 0.495 | 0.491 |
| 210.0 | 2.7 | 183.2 | 0.865 | 5.959 | 10.799 | 0.134 | 0.599 | 0.471 |
| 225.0 | 3.7 | 209.2 | 0.718 | 8.823 | 10.462 | 0.114 | 1.075 | 0.387 |
| 240.0 | 4.6 | 237.6 | 0.520 | 8.861 | 10.501 | 0.082 | 1.584 | 0.434 |
| 255.0 | 4.5 | 251.8 | 0.371 | 8.489 | 10.515 | 0.064 | 1.632 | 0.484 |
| 270.0 | 4.1 | 266.2 | 0.386 | 8.540 | 10.871 | 0.054 | 1.610 | 0.525 |
| 285.0 | 3.8 | 279.0 | 0.358 | 8.960 | 10.649 | 0.041 | 1.531 | 0.557 |
| 300.0 | 3.3 | 290.2 | 0.354 | 8.306 | 10.770 | 0.042 | 1.434 | 0.582 |
| 315.0 | 3.0 | 300.5 | 0.397 | 8.214 | 11.169 | 0.066 | 1.374 | 0.636 |
| 330.0 | 2.7 | 311.4 | 0.631 | 8.129 | 11.309 | 0.101 | 1.324 | 0.704 |
| 345.0 | 2.6 | 323.6 | 0.822 | 8.057 | 11.401 | 0.138 | 1.285 | 0.753 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.66: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 7.4 | -24.1 | 1.060 | 8.164 | 11.531 | 0.193 | 1.320 | 0.846 |
| 15.0 | 7.4 | -12.0 | 1.062 | 7.446 | 11.634 | 0.215 | 1.279 | 0.874 |
| 30.0 | 7.6 | 2.2 | 0.913 | 7.098 | 11.555 | 0.224 | 1.217 | 0.888 |
| 45.0 | 7.9 | 19.7 | 0.781 | 6.277 | 11.566 | 0.208 | 1.077 | 0.870 |
| 60.0 | 8.3 | 39.5 | 0.608 | 6.524 | 11.729 | 0.161 | 0.902 | 0.786 |
| 75.0 | 8.6 | 61.1 | 0.336 | 6.119 | 11.869 | 0.089 | 0.726 | 0.615 |
| 90.0 | 8.9 | 82.5 | 0.234 | 7.306 | 10.808 | 0.041 | 0.948 | 0.403 |
| 105.0 | 8.6 | 94.8 | 0.289 | 8.821 | 10.191 | 0.047 | 0.898 | 0.325 |
| 120.0 | 8.3 | 105.8 | 0.349 | 9.286 | 10.268 | 0.055 | 0.798 | 0.299 |
| 135.0 | 8.1 | 114.5 | 0.350 | 8.615 | 10.352 | 0.060 | 0.628 | 0.324 |
| 150.0 | 8.0 | 127.8 | 0.430 | 7.824 | 10.623 | 0.074 | 0.546 | 0.343 |
| 165.0 | 7.8 | 141.5 | 0.553 | 6.271 | 11.172 | 0.085 | 0.430 | 0.351 |
| 180.0 | 7.7 | 155.3 | 0.768 | 5.974 | 10.958 | 0.099 | 0.345 | 0.356 |
| 195.0 | 7.7 | 171.9 | 0.763 | 6.545 | 10.736 | 0.108 | 0.449 | 0.358 |
| 210.0 | 8.7 | 201.6 | 0.920 | 8.415 | 10.295 | 0.102 | 1.059 | 0.411 |
| 225.0 | 9.3 | 223.0 | 0.930 | 10.395 | 10.579 | 0.094 | 1.513 | 0.462 |
| 240.0 | 9.6 | 239.4 | 0.563 | 9.593 | 10.264 | 0.084 | 1.707 | 0.496 |
| 255.0 | 9.7 | 254.2 | 0.640 | 9.532 | 10.354 | 0.076 | 1.871 | 0.607 |
| 270.0 | 9.5 | 268.7 | 0.421 | 9.523 | 10.572 | 0.067 | 1.842 | 0.623 |
| 285.0 | 9.3 | 282.5 | 0.507 | 9.275 | 10.731 | 0.052 | 1.739 | 0.641 |
| 300.0 | 8.9 | 295.7 | 0.303 | 9.558 | 10.769 | 0.057 | 1.509 | 0.606 |
| 315.0 | 8.2 | 306.6 | 0.495 | 8.645 | 10.985 | 0.092 | 1.394 | 0.674 |
| 330.0 | 7.7 | 315.2 | 0.724 | 8.136 | 11.139 | 0.126 | 1.359 | 0.741 |
| 345.0 | 7.6 | 325.2 | 0.930 | 8.129 | 11.396 | 0.162 | 1.341 | 0.805 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.67: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 13.3 | -6.3 | 1.152 | 7.249 | 12.012 | 0.251 | 1.016 | 0.899 |
| 15.0 | 13.2 | 7.7 | 1.060 | 7.383 | 11.755 | 0.253 | 0.968 | 0.918 |
| 30.0 | 13.3 | 22.6 | 0.973 | 6.765 | 11.984 | 0.233 | 0.917 | 0.909 |
| 45.0 | 13.7 | 38.6 | 0.689 | 6.338 | 12.014 | 0.187 | 0.800 | 0.821 |
| 60.0 | 13.8 | 53.8 | 0.472 | 6.737 | 11.889 | 0.133 | 0.730 | 0.708 |
| 75.0 | 14.3 | 71.1 | 0.313 | 8.145 | 11.786 | 0.075 | 0.985 | 0.464 |
| 90.0 | 14.2 | 85.8 | 0.311 | 8.712 | 9.925 | 0.060 | 1.115 | 0.317 |
| 105.0 | 14.0 | 99.9 | 0.428 | 9.254 | 9.616 | 0.076 | 1.066 | 0.282 |
| 120.0 | 13.4 | 112.4 | 0.499 | 10.072 | 10.424 | 0.095 | 0.863 | 0.348 |
| 135.0 | 13.5 | 127.9 | 0.630 | 9.327 | 10.988 | 0.111 | 0.851 | 0.365 |
| 150.0 | 13.6 | 143.3 | 0.723 | 10.539 | 10.316 | 0.122 | 0.838 | 0.352 |
| 165.0 | 13.7 | 159.4 | 0.616 | 9.054 | 9.804 | 0.133 | 0.878 | 0.346 |
| 180.0 | 14.0 | 176.0 | 0.479 | 7.375 | 9.922 | 0.128 | 0.974 | 0.384 |
| 195.0 | 14.1 | 192.4 | 0.644 | 8.759 | 10.080 | 0.131 | 1.251 | 0.455 |
| 210.0 | 14.2 | 208.8 | 0.845 | 10.879 | 10.216 | 0.123 | 1.465 | 0.493 |
| 225.0 | 14.3 | 224.6 | 0.839 | 11.119 | 10.281 | 0.116 | 1.705 | 0.548 |
| 240.0 | 14.6 | 239.7 | 0.749 | 10.033 | 10.499 | 0.102 | 1.871 | 0.588 |
| 255.0 | 14.7 | 254.8 | 0.731 | 11.051 | 10.413 | 0.092 | 2.064 | 0.762 |
| 270.0 | 14.7 | 269.6 | 0.592 | 10.003 | 10.602 | 0.080 | 2.134 | 0.813 |
| 285.0 | 14.6 | 284.1 | 0.443 | 9.941 | 11.012 | 0.064 | 2.063 | 0.808 |
| 300.0 | 14.5 | 298.4 | 0.363 | 9.333 | 11.084 | 0.073 | 1.697 | 0.690 |
| 315.0 | 14.3 | 312.5 | 0.609 | 9.125 | 10.838 | 0.127 | 1.468 | 0.746 |
| 330.0 | 14.0 | 326.4 | 0.891 | 8.566 | 11.391 | 0.182 | 1.245 | 0.795 |
| 345.0 | 13.7 | 340.2 | 1.019 | 7.805 | 11.568 | 0.225 | 1.097 | 0.850 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.68: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 19.4 | -2.5 | 1.410 | 8.164 | 12.339 | 0.277 | 0.893 | 0.937 |
| 15.0 | 19.4 | 12.4 | 1.203 | 7.540 | 12.204 | 0.273 | 0.850 | 0.937 |
| 30.0 | 19.4 | 27.2 | 1.040 | 8.157 | 12.056 | 0.245 | 0.813 | 0.909 |
| 45.0 | 19.4 | 42.1 | 0.851 | 7.426 | 12.068 | 0.199 | 0.777 | 0.832 |
| 60.0 | 19.4 | 56.7 | 0.605 | 8.859 | 12.101 | 0.144 | 0.757 | 0.689 |
| 75.0 | 19.7 | 72.5 | 0.345 | 8.683 | 10.736 | 0.087 | 1.203 | 0.456 |
| 90.0 | 19.6 | 87.1 | 0.379 | 9.260 | 9.488 | 0.084 | 1.254 | 0.353 |
| 105.0 | 19.5 | 101.8 | 0.547 | 10.802 | 9.359 | 0.108 | 1.241 | 0.422 |
| 120.0 | 19.5 | 116.7 | 0.742 | 10.981 | 10.624 | 0.145 | 1.071 | 0.474 |
| 135.0 | 19.4 | 131.5 | 0.748 | 10.250 | 9.775 | 0.162 | 1.049 | 0.488 |
| 150.0 | 19.5 | 146.8 | 0.884 | 10.658 | 9.929 | 0.179 | 0.999 | 0.484 |
| 165.0 | 19.5 | 162.4 | 0.733 | 9.039 | 9.943 | 0.190 | 0.986 | 0.490 |
| 180.0 | 19.6 | 177.8 | 0.607 | 7.922 | 10.034 | 0.177 | 0.990 | 0.520 |
| 195.0 | 19.6 | 193.7 | 0.688 | 8.018 | 10.156 | 0.178 | 1.301 | 0.570 |
| 210.0 | 19.5 | 209.1 | 0.733 | 10.401 | 10.278 | 0.158 | 1.515 | 0.625 |
| 225.0 | 19.6 | 224.3 | 0.585 | 9.820 | 10.278 | 0.148 | 1.787 | 0.696 |
| 240.0 | 19.6 | 239.4 | 0.897 | 12.076 | 10.260 | 0.133 | 1.946 | 0.723 |
| 255.0 | 19.8 | 254.7 | 0.568 | 10.631 | 10.519 | 0.112 | 2.191 | 0.940 |
| 270.0 | 19.8 | 269.9 | 0.495 | 10.308 | 10.616 | 0.096 | 2.373 | 1.010 |
| 285.0 | 19.8 | 284.6 | 0.471 | 10.564 | 11.041 | 0.078 | 2.324 | 1.056 |
| 300.0 | 19.8 | 299.1 | 0.349 | 10.143 | 10.637 | 0.088 | 1.852 | 0.785 |
| 315.0 | 19.7 | 313.6 | 0.660 | 10.109 | 10.975 | 0.146 | 1.590 | 0.848 |
| 330.0 | 19.6 | 328.2 | 0.857 | 10.283 | 11.235 | 0.205 | 1.268 | 0.867 |
| 345.0 | 19.5 | 342.8 | 1.257 | 8.819 | 11.963 | 0.251 | 1.035 | 0.900 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.69: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 24.8 | -1.5 | 1.303 | 7.594 | 11.758 | 0.301 | 0.903 | 0.997 |
| 15.0 | 24.8 | 13.5 | 1.252 | 6.938 | 12.319 | 0.296 | 0.874 | 1.003 |
| 30.0 | 24.8 | 28.4 | 1.052 | 7.111 | 12.153 | 0.263 | 0.866 | 0.972 |
| 45.0 | 24.8 | 43.2 | 0.804 | 8.358 | 12.185 | 0.214 | 0.811 | 0.881 |
| 60.0 | 24.7 | 57.8 | 0.666 | 8.423 | 12.134 | 0.159 | 0.763 | 0.711 |
| 75.0 | 24.9 | 73.2 | 0.433 | 8.931 | 11.028 | 0.101 | 1.335 | 0.512 |
| 90.0 | 24.9 | 87.9 | 0.455 | 10.033 | 9.488 | 0.103 | 1.363 | 0.442 |
| 105.0 | 24.8 | 102.7 | 0.739 | 11.381 | 9.403 | 0.133 | 1.359 | 0.524 |
| 120.0 | 24.8 | 117.7 | 0.867 | 11.331 | 10.603 | 0.174 | 1.056 | 0.477 |
| 135.0 | 24.7 | 132.5 | 0.895 | 10.560 | 9.727 | 0.198 | 0.946 | 0.498 |
| 150.0 | 24.7 | 147.6 | 0.890 | 10.101 | 9.733 | 0.233 | 0.877 | 0.501 |
| 165.0 | 24.8 | 163.1 | 0.847 | 8.950 | 9.948 | 0.242 | 0.799 | 0.517 |
| 180.0 | 25.0 | 178.5 | 0.645 | 6.838 | 9.998 | 0.213 | 0.725 | 0.501 |
| 195.0 | 25.0 | 194.2 | 0.723 | 7.944 | 10.213 | 0.228 | 1.150 | 0.623 |
| 210.0 | 24.9 | 209.3 | 0.739 | 8.344 | 10.232 | 0.198 | 1.366 | 0.683 |
| 225.0 | 24.9 | 224.3 | 0.716 | 9.361 | 10.318 | 0.177 | 1.699 | 0.820 |
| 240.0 | 24.8 | 239.4 | 0.711 | 10.759 | 10.435 | 0.154 | 1.876 | 0.832 |
| 255.0 | 24.8 | 254.7 | 0.662 | 11.221 | 10.646 | 0.139 | 2.258 | 1.152 |
| 270.0 | 24.8 | 269.8 | 0.486 | 11.203 | 10.464 | 0.112 | 2.515 | 1.262 |
| 285.0 | 24.9 | 284.5 | 0.449 | 10.937 | 10.703 | 0.092 | 2.468 | 1.242 |
| 300.0 | 25.0 | 299.4 | 0.384 | 10.578 | 10.933 | 0.100 | 1.856 | 0.834 |
| 315.0 | 24.9 | 314.1 | 0.732 | 12.246 | 11.058 | 0.160 | 1.606 | 0.907 |
| 330.0 | 24.9 | 328.9 | 1.097 | 10.489 | 11.435 | 0.228 | 1.310 | 0.939 |
| 345.0 | 24.8 | 343.7 | 1.259 | 8.720 | 11.907 | 0.276 | 1.018 | 0.972 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table U.70: Accelerations at Flight Deck: Bretschneider Spectrum with $H_s = 17.7$ m and $T_p = 25.7$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.0 | -0.9 | 1.391 | 7.671 | 12.545 | 0.320 | 0.975 | 1.056 |
| 15.0 | 30.0 | 14.1 | 1.373 | 7.277 | 12.483 | 0.311 | 0.962 | 1.055 |
| 30.0 | 30.0 | 28.9 | 1.174 | 7.538 | 12.493 | 0.280 | 0.935 | 1.029 |
| 45.0 | 30.0 | 43.8 | 0.960 | 7.855 | 12.140 | 0.225 | 0.830 | 0.932 |
| 60.0 | 30.0 | 58.5 | 0.725 | 9.328 | 12.023 | 0.167 | 0.746 | 0.751 |
| 75.0 | 30.1 | 73.7 | 0.548 | 8.803 | 11.420 | 0.116 | 1.492 | 0.637 |
| 90.0 | 30.0 | 88.4 | 0.600 | 10.404 | 9.671 | 0.120 | 1.501 | 0.541 |
| 105.0 | 30.0 | 103.2 | 1.165 | 11.199 | 10.211 | 0.155 | 1.439 | 0.586 |
| 120.0 | 29.9 | 118.4 | 0.999 | 9.479 | 10.827 | 0.201 | 1.163 | 0.448 |
| 135.0 | 29.8 | 133.1 | 1.014 | 9.794 | 10.299 | 0.235 | 0.945 | 0.438 |
| 150.0 | 29.9 | 148.2 | 0.806 | 7.812 | 10.210 | 0.259 | 0.686 | 0.418 |
| 165.0 | 30.1 | 163.4 | 0.990 | 8.408 | 9.749 | 0.252 | 0.575 | 0.430 |
| 180.0 | 30.4 | 178.7 | 0.976 | 7.201 | 10.064 | 0.278 | 0.670 | 0.467 |
| 195.0 | 30.4 | 194.1 | 0.816 | 7.999 | 10.114 | 0.239 | 0.749 | 0.481 |
| 210.0 | 30.2 | 209.5 | 1.015 | 9.473 | 10.302 | 0.244 | 1.335 | 0.683 |
| 225.0 | 30.1 | 224.6 | 0.912 | 9.971 | 10.302 | 0.225 | 1.733 | 0.929 |
| 240.0 | 30.1 | 239.6 | 0.710 | 9.564 | 10.402 | 0.179 | 1.840 | 0.912 |
| 255.0 | 29.9 | 254.7 | 0.719 | 11.187 | 10.449 | 0.163 | 2.239 | 1.376 |
| 270.0 | 29.9 | 269.6 | 0.678 | 11.228 | 10.515 | 0.136 | 2.553 | 1.468 |
| 285.0 | 29.9 | 284.6 | 0.733 | 11.871 | 10.625 | 0.117 | 2.530 | 1.507 |
| 300.0 | 30.1 | 299.5 | 0.466 | 11.350 | 10.953 | 0.112 | 1.829 | 0.858 |
| 315.0 | 30.1 | 314.4 | 0.740 | 12.378 | 11.312 | 0.170 | 1.542 | 0.895 |
| 330.0 | 30.1 | 329.3 | 1.042 | 10.640 | 11.296 | 0.243 | 1.220 | 0.978 |
| 345.0 | 30.0 | 344.2 | 1.281 | 8.706 | 12.233 | 0.295 | 1.051 | 1.022 |
| Wind at 69.4 knots (35.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex V

Tables of Flight Deck Accelerations – JONSWAP Spectrum (Coastal Waters)

Table V.1: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.2 | -28.4 | 0.797 | 2.295 | 11.071 | 0.185 | 0.429 | 0.499 |
| 15.0 | -0.2 | -6.7 | 0.761 | 0.959 | 10.907 | 0.167 | 0.159 | 0.423 |
| 30.0 | -0.2 | 20.1 | 0.726 | 1.837 | 10.889 | 0.174 | 0.316 | 0.427 |
| 45.0 | -0.2 | 35.0 | 0.737 | 2.421 | 11.043 | 0.190 | 0.560 | 0.475 |
| 60.0 | -0.4 | 43.8 | 0.832 | 3.111 | 11.601 | 0.196 | 0.742 | 0.514 |
| 75.0 | -0.6 | 50.6 | 0.735 | 4.179 | 12.452 | 0.198 | 0.871 | 0.548 |
| 90.0 | -0.7 | 56.8 | 0.892 | 4.797 | 12.397 | 0.197 | 1.010 | 0.583 |
| 105.0 | -0.8 | 60.5 | 0.829 | 5.044 | 12.623 | 0.194 | 1.054 | 0.605 |
| 120.0 | -0.9 | 65.1 | 0.856 | 6.478 | 13.607 | 0.178 | 1.057 | 0.610 |
| 135.0 | -2.1 | 102.4 | 0.800 | 7.300 | 12.983 | 0.158 | 1.194 | 0.675 |
| 150.0 | -2.2 | 104.5 | 0.837 | 6.305 | 12.702 | 0.165 | 1.151 | 0.679 |
| 165.0 | -2.4 | 103.6 | 1.143 | 7.588 | 12.910 | 0.154 | 1.120 | 0.670 |
| 180.0 | -0.8 | 59.1 | 0.771 | 3.531 | 11.796 | 0.163 | 0.628 | 0.484 |
| 195.0 | -0.2 | 352.3 | 0.752 | 3.256 | 11.672 | 0.185 | 0.687 | 0.540 |
| 210.0 | -0.2 | 382.7 | 0.824 | 3.685 | 11.912 | 0.195 | 0.785 | 0.607 |
| 225.0 | 0.0 | 379.0 | 0.753 | 3.785 | 12.575 | 0.203 | 0.857 | 0.633 |
| 240.0 | 0.7 | 294.4 | 0.868 | 3.872 | 12.763 | 0.203 | 1.062 | 0.739 |
| 255.0 | 0.5 | 293.5 | 0.861 | 4.066 | 12.712 | 0.203 | 1.088 | 0.762 |
| 270.0 | 0.3 | 296.5 | 0.861 | 4.278 | 12.756 | 0.205 | 1.077 | 0.750 |
| 285.0 | 0.1 | 300.8 | 0.715 | 3.988 | 12.570 | 0.210 | 1.015 | 0.721 |
| 300.0 | 0.0 | 305.3 | 0.745 | 4.193 | 12.159 | 0.210 | 0.935 | 0.684 |
| 315.0 | -0.0 | 309.8 | 0.787 | 3.734 | 12.129 | 0.209 | 0.841 | 0.649 |
| 330.0 | -0.1 | 315.0 | 0.820 | 3.439 | 11.637 | 0.205 | 0.724 | 0.607 |
| 345.0 | -0.1 | 321.5 | 0.814 | 2.856 | 11.400 | 0.198 | 0.594 | 0.561 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.2: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.1 | 0.697 | 1.017 | 11.230 | 0.192 | 0.144 | 0.534 |
| 15.0 | 4.8 | 12.8 | 0.793 | 1.024 | 11.277 | 0.195 | 0.204 | 0.538 |
| 30.0 | 4.7 | 27.8 | 0.923 | 1.502 | 11.419 | 0.209 | 0.357 | 0.577 |
| 45.0 | 4.7 | 42.2 | 0.841 | 2.338 | 11.478 | 0.226 | 0.592 | 0.641 |
| 60.0 | 4.4 | 53.9 | 0.852 | 3.506 | 12.058 | 0.230 | 0.817 | 0.692 |
| 75.0 | 4.1 | 56.6 | 0.780 | 4.212 | 12.380 | 0.226 | 0.885 | 0.698 |
| 90.0 | 4.1 | 60.8 | 0.787 | 4.372 | 12.361 | 0.220 | 0.964 | 0.717 |
| 105.0 | 4.1 | 63.1 | 0.793 | 4.898 | 12.416 | 0.217 | 0.993 | 0.724 |
| 120.0 | 4.1 | 64.0 | 0.747 | 3.758 | 12.508 | 0.216 | 0.989 | 0.728 |
| 135.0 | 4.0 | 64.2 | 0.748 | 3.601 | 12.493 | 0.218 | 0.985 | 0.732 |
| 150.0 | 4.1 | 74.6 | 0.842 | 3.711 | 12.686 | 0.210 | 0.921 | 0.687 |
| 165.0 | 4.9 | 163.1 | 0.367 | 1.502 | 10.779 | 0.096 | 0.288 | 0.181 |
| 180.0 | 4.9 | 178.7 | 0.357 | 1.045 | 10.710 | 0.090 | 0.184 | 0.173 |
| 195.0 | 4.9 | 194.1 | 0.349 | 1.337 | 10.745 | 0.093 | 0.287 | 0.190 |
| 210.0 | 4.8 | 210.3 | 0.404 | 2.039 | 10.915 | 0.105 | 0.481 | 0.243 |
| 225.0 | 4.5 | 283.4 | 0.777 | 4.760 | 13.562 | 0.195 | 1.062 | 0.835 |
| 240.0 | 4.6 | 285.3 | 0.708 | 4.196 | 13.412 | 0.192 | 1.088 | 0.883 |
| 255.0 | 4.5 | 286.8 | 0.767 | 4.492 | 13.538 | 0.199 | 1.093 | 0.891 |
| 270.0 | 4.5 | 288.9 | 0.819 | 4.426 | 13.807 | 0.207 | 1.085 | 0.884 |
| 285.0 | 4.7 | 291.3 | 0.922 | 4.640 | 13.880 | 0.220 | 1.080 | 0.875 |
| 300.0 | 4.9 | 301.2 | 0.830 | 4.283 | 12.755 | 0.238 | 0.945 | 0.785 |
| 315.0 | 4.8 | 314.0 | 0.924 | 2.886 | 11.720 | 0.235 | 0.694 | 0.693 |
| 330.0 | 4.8 | 328.1 | 0.839 | 2.329 | 11.389 | 0.218 | 0.447 | 0.620 |
| 345.0 | 4.8 | 343.0 | 0.768 | 1.373 | 11.281 | 0.201 | 0.235 | 0.561 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.3: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.848 | 0.936 | 11.766 | 0.215 | 0.104 | 0.627 |
| 15.0 | 10.0 | 14.4 | 0.776 | 1.073 | 11.606 | 0.220 | 0.168 | 0.633 |
| 30.0 | 10.0 | 29.4 | 0.940 | 1.600 | 11.694 | 0.238 | 0.345 | 0.674 |
| 45.0 | 9.9 | 44.5 | 0.918 | 2.453 | 11.886 | 0.254 | 0.588 | 0.724 |
| 60.0 | 10.0 | 59.1 | 0.887 | 3.986 | 12.322 | 0.253 | 0.859 | 0.820 |
| 75.0 | 10.0 | 73.0 | 0.843 | 5.356 | 13.422 | 0.215 | 0.991 | 0.947 |
| 90.0 | 9.7 | 86.0 | 0.411 | 5.893 | 13.263 | 0.088 | 0.920 | 0.861 |
| 105.0 | 9.4 | 100.8 | 0.618 | 6.318 | 12.504 | 0.108 | 1.070 | 0.555 |
| 120.0 | 9.6 | 116.9 | 0.327 | 3.943 | 11.383 | 0.096 | 1.009 | 0.333 |
| 135.0 | 9.9 | 133.2 | 0.299 | 3.358 | 10.499 | 0.085 | 1.063 | 0.182 |
| 150.0 | 10.0 | 148.8 | 0.243 | 3.422 | 10.308 | 0.074 | 1.118 | 0.133 |
| 165.0 | 10.1 | 164.1 | 0.250 | 3.721 | 10.153 | 0.065 | 0.892 | 0.104 |
| 180.0 | 10.1 | 179.2 | 0.233 | 2.432 | 10.136 | 0.062 | 0.535 | 0.074 |
| 195.0 | 10.1 | 194.7 | 0.243 | 1.980 | 10.325 | 0.068 | 0.538 | 0.091 |
| 210.0 | 10.1 | 210.3 | 0.262 | 2.569 | 10.416 | 0.075 | 0.895 | 0.137 |
| 225.0 | 10.0 | 225.9 | 0.302 | 3.211 | 10.680 | 0.087 | 0.984 | 0.216 |
| 240.0 | 9.7 | 242.3 | 0.345 | 3.394 | 11.441 | 0.100 | 1.023 | 0.361 |
| 255.0 | 9.5 | 259.2 | 0.644 | 4.904 | 12.424 | 0.116 | 1.119 | 0.608 |
| 270.0 | 9.8 | 273.7 | 0.456 | 5.694 | 13.186 | 0.076 | 1.012 | 0.910 |
| 285.0 | 10.2 | 286.6 | 0.866 | 4.217 | 14.063 | 0.215 | 1.077 | 1.027 |
| 300.0 | 10.1 | 300.1 | 0.941 | 3.764 | 12.515 | 0.258 | 0.927 | 0.870 |
| 315.0 | 10.0 | 314.7 | 0.901 | 2.540 | 12.109 | 0.259 | 0.636 | 0.747 |
| 330.0 | 10.0 | 329.6 | 0.942 | 1.964 | 11.776 | 0.243 | 0.386 | 0.687 |
| 345.0 | 10.0 | 344.6 | 0.806 | 1.289 | 11.609 | 0.223 | 0.199 | 0.642 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.4: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.2 | 0.855 | 1.070 | 11.741 | 0.237 | 0.100 | 0.669 |
| 15.0 | 15.2 | 14.8 | 0.791 | 1.185 | 11.771 | 0.243 | 0.171 | 0.678 |
| 30.0 | 15.1 | 29.8 | 0.955 | 1.735 | 11.908 | 0.262 | 0.339 | 0.734 |
| 45.0 | 15.1 | 44.8 | 0.998 | 2.692 | 12.107 | 0.279 | 0.571 | 0.816 |
| 60.0 | 15.2 | 59.7 | 1.010 | 3.576 | 13.084 | 0.270 | 0.836 | 0.944 |
| 75.0 | 15.2 | 74.1 | 0.793 | 4.649 | 13.802 | 0.216 | 0.961 | 1.068 |
| 90.0 | 15.1 | 88.5 | 0.282 | 5.533 | 13.210 | 0.047 | 0.893 | 0.806 |
| 105.0 | 15.0 | 103.3 | 0.450 | 7.455 | 12.928 | 0.086 | 1.067 | 0.475 |
| 120.0 | 15.0 | 118.5 | 0.251 | 4.650 | 10.810 | 0.066 | 1.461 | 0.268 |
| 135.0 | 15.2 | 134.3 | 0.223 | 4.501 | 10.470 | 0.051 | 1.499 | 0.223 |
| 150.0 | 15.3 | 149.7 | 0.211 | 3.312 | 10.240 | 0.057 | 0.891 | 0.117 |
| 165.0 | 15.3 | 164.7 | 0.219 | 2.093 | 10.064 | 0.059 | 0.449 | 0.069 |
| 180.0 | 15.2 | 179.5 | 0.296 | 2.465 | 10.072 | 0.063 | 0.338 | 0.063 |
| 195.0 | 15.2 | 194.7 | 0.178 | 2.243 | 9.884 | 0.055 | 0.421 | 0.038 |
| 210.0 | 15.2 | 209.8 | 0.170 | 2.531 | 9.957 | 0.043 | 0.631 | 0.050 |
| 225.0 | 15.2 | 225.4 | 0.246 | 4.162 | 10.609 | 0.055 | 1.499 | 0.152 |
| 240.0 | 15.1 | 241.1 | 0.250 | 4.544 | 10.907 | 0.073 | 1.462 | 0.259 |
| 255.0 | 15.0 | 256.7 | 0.562 | 5.039 | 12.532 | 0.095 | 1.144 | 0.492 |
| 270.0 | 15.1 | 271.5 | 0.324 | 5.000 | 13.148 | 0.042 | 1.030 | 0.873 |
| 285.0 | 15.3 | 285.8 | 0.791 | 4.485 | 13.946 | 0.214 | 1.096 | 1.134 |
| 300.0 | 15.2 | 300.1 | 0.954 | 3.384 | 12.783 | 0.271 | 0.893 | 0.986 |
| 315.0 | 15.1 | 314.8 | 0.945 | 2.494 | 12.134 | 0.281 | 0.618 | 0.838 |
| 330.0 | 15.1 | 329.8 | 0.966 | 1.784 | 12.072 | 0.265 | 0.367 | 0.746 |
| 345.0 | 15.2 | 344.8 | 0.885 | 1.137 | 12.076 | 0.245 | 0.185 | 0.684 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.5: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.865 | 1.182 | 12.304 | 0.253 | 0.112 | 0.783 |
| 15.0 | 20.3 | 14.9 | 0.864 | 1.347 | 12.425 | 0.260 | 0.168 | 0.804 |
| 30.0 | 20.3 | 29.9 | 0.977 | 1.738 | 12.599 | 0.281 | 0.320 | 0.887 |
| 45.0 | 20.3 | 44.9 | 1.018 | 2.634 | 12.795 | 0.297 | 0.544 | 0.988 |
| 60.0 | 20.3 | 59.8 | 1.040 | 3.859 | 13.236 | 0.284 | 0.811 | 1.111 |
| 75.0 | 20.4 | 74.5 | 0.786 | 4.540 | 14.071 | 0.218 | 0.944 | 1.175 |
| 90.0 | 20.3 | 89.1 | 0.317 | 6.943 | 12.874 | 0.041 | 0.899 | 0.797 |
| 105.0 | 20.2 | 104.1 | 0.393 | 6.343 | 11.915 | 0.070 | 1.137 | 0.420 |
| 120.0 | 20.3 | 119.3 | 0.193 | 5.774 | 10.810 | 0.041 | 1.889 | 0.318 |
| 135.0 | 20.2 | 134.8 | 0.226 | 4.753 | 10.339 | 0.057 | 1.564 | 0.203 |
| 150.0 | 20.4 | 149.8 | 0.253 | 2.916 | 10.052 | 0.064 | 0.742 | 0.082 |
| 165.0 | 20.3 | 164.6 | 0.325 | 2.774 | 9.977 | 0.066 | 0.385 | 0.068 |
| 180.0 | 20.6 | 179.8 | 0.267 | 3.267 | 9.998 | 0.068 | 0.324 | 0.067 |
| 195.0 | 20.4 | 194.7 | 0.319 | 3.718 | 9.948 | 0.063 | 0.582 | 0.092 |
| 210.0 | 20.3 | 209.8 | 0.294 | 4.236 | 9.913 | 0.060 | 0.905 | 0.121 |
| 225.0 | 20.3 | 225.1 | 0.183 | 4.994 | 10.011 | 0.048 | 1.450 | 0.153 |
| 240.0 | 20.3 | 240.6 | 0.222 | 5.531 | 11.260 | 0.049 | 2.028 | 0.231 |
| 255.0 | 20.2 | 255.9 | 0.357 | 4.720 | 11.810 | 0.077 | 1.222 | 0.409 |
| 270.0 | 20.3 | 270.9 | 0.270 | 5.065 | 12.920 | 0.039 | 1.081 | 0.862 |
| 285.0 | 20.4 | 285.5 | 0.932 | 5.353 | 14.855 | 0.212 | 1.130 | 1.233 |
| 300.0 | 20.3 | 300.1 | 0.906 | 3.143 | 13.438 | 0.281 | 0.904 | 1.146 |
| 315.0 | 20.3 | 315.0 | 0.991 | 2.431 | 13.044 | 0.296 | 0.608 | 1.009 |
| 330.0 | 20.3 | 329.9 | 1.006 | 1.715 | 12.786 | 0.281 | 0.363 | 0.901 |
| 345.0 | 20.3 | 344.9 | 0.844 | 1.225 | 12.562 | 0.260 | 0.193 | 0.811 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.6: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|-----------------------------|----------------|-----------------|-------------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.934 | 1.369 | 12.673 | 0.260 | 0.141 | 0.975 |
| 15.0 | 25.4 | 14.9 | 0.837 | 1.447 | 12.794 | 0.268 | 0.163 | 1.007 |
| 30.0 | 25.4 | 29.9 | 0.950 | 2.129 | 13.316 | 0.291 | 0.297 | 1.110 |
| 45.0 | 25.4 | 44.9 | 1.070 | 2.799 | 13.569 | 0.309 | 0.513 | 1.219 |
| 60.0 | 25.4 | 59.8 | 1.007 | 3.866 | 13.558 | 0.294 | 0.791 | 1.296 |
| 75.0 | 25.4 | 74.6 | 0.752 | 4.725 | 14.492 | 0.218 | 0.942 | 1.275 |
| 90.0 | 25.4 | 89.4 | 0.268 | 7.166 | 13.114 | 0.040 | 0.911 | 0.794 |
| 105.0 | 25.4 | 104.4 | 0.274 | 6.429 | 11.697 | 0.056 | 1.263 | 0.373 |
| 120.0 | 25.3 | 119.7 | 0.381 | 7.419 | 11.180 | 0.060 | 2.505 | 0.385 |
| 135.0 | 25.3 | 134.9 | 0.311 | 4.758 | 9.921 | 0.065 | 1.309 | 0.150 |
| 150.0 | 25.5 | 149.8 | 0.346 | 2.673 | 10.039 | 0.074 | 0.563 | 0.086 |
| 165.0 | 25.5 | 164.8 | 0.356 | 2.395 | 10.205 | 0.077 | 0.351 | 0.106 |
| 180.0 | 25.4 | 179.8 | 0.388 | 3.451 | 10.129 | 0.083 | 0.492 | 0.136 |
| 195.0 | 25.5 | 194.9 | 0.797 | 3.592 | 10.125 | 0.079 | 0.561 | 0.124 |
| 210.0 | 25.4 | 210.0 | 0.381 | 3.774 | 10.066 | 0.072 | 0.793 | 0.124 |
| 225.0 | 25.3 | 225.0 | 0.266 | 5.293 | 9.898 | 0.061 | 1.388 | 0.188 |
| 240.0 | 25.3 | 240.2 | 0.295 | 6.853 | 10.763 | 0.053 | 2.415 | 0.303 |
| 255.0 | 25.4 | 255.5 | 0.316 | 5.173 | 11.688 | 0.065 | 1.373 | 0.343 |
| 270.0 | 25.4 | 270.6 | 0.278 | 5.324 | 12.879 | 0.042 | 1.111 | 0.858 |
| 285.0 | 25.4 | 285.3 | 0.814 | 5.251 | 14.974 | 0.211 | 1.177 | 1.331 |
| 300.0 | 25.4 | 300.1 | 0.958 | 3.444 | 13.917 | 0.288 | 0.937 | 1.325 |
| 315.0 | 25.4 | 315.1 | 1.012 | 2.533 | 13.872 | 0.305 | 0.624 | 1.234 |
| 330.0 | 25.4 | 330.0 | 0.934 | 1.988 | 13.349 | 0.289 | 0.382 | 1.118 |
| 345.0 | 25.4 | 345.0 | 0.824 | 1.338 | 12.852 | 0.268 | 0.217 | 1.012 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.7: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 8.2$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.1 | 0.870 | 1.405 | 13.087 | 0.258 | 0.164 | 1.141 |
| 15.0 | 30.5 | 14.9 | 0.927 | 1.667 | 13.321 | 0.267 | 0.166 | 1.186 |
| 30.0 | 30.5 | 29.9 | 0.949 | 2.123 | 13.498 | 0.293 | 0.275 | 1.320 |
| 45.0 | 30.5 | 44.9 | 1.022 | 3.148 | 14.090 | 0.314 | 0.489 | 1.452 |
| 60.0 | 30.5 | 59.9 | 0.974 | 4.126 | 14.296 | 0.300 | 0.775 | 1.485 |
| 75.0 | 30.5 | 74.7 | 0.743 | 4.779 | 14.758 | 0.219 | 0.923 | 1.379 |
| 90.0 | 30.5 | 89.6 | 0.212 | 5.750 | 13.288 | 0.042 | 0.935 | 0.789 |
| 105.0 | 30.5 | 104.6 | 0.224 | 5.842 | 11.498 | 0.053 | 1.459 | 0.352 |
| 120.0 | 30.4 | 119.9 | 0.444 | 6.007 | 10.536 | 0.076 | 2.234 | 0.322 |
| 135.0 | 30.4 | 134.9 | 0.288 | 3.689 | 9.990 | 0.075 | 1.126 | 0.125 |
| 150.0 | 30.6 | 149.8 | 0.382 | 3.509 | 10.365 | 0.082 | 0.628 | 0.141 |
| 165.0 | 30.4 | 165.0 | 0.456 | 2.567 | 10.244 | 0.087 | 0.443 | 0.161 |
| 180.0 | 30.7 | 179.9 | 0.454 | 3.199 | 10.334 | 0.084 | 0.551 | 0.182 |
| 195.0 | 30.4 | 194.8 | 0.429 | 4.013 | 10.262 | 0.089 | 0.747 | 0.189 |
| 210.0 | 30.6 | 210.0 | 0.336 | 4.372 | 10.237 | 0.084 | 0.945 | 0.176 |
| 225.0 | 30.4 | 225.0 | 0.286 | 4.073 | 9.924 | 0.073 | 1.243 | 0.161 |
| 240.0 | 30.4 | 240.0 | 0.389 | 6.990 | 10.358 | 0.069 | 2.254 | 0.331 |
| 255.0 | 30.5 | 255.3 | 0.308 | 8.400 | 11.794 | 0.061 | 1.661 | 0.313 |
| 270.0 | 30.5 | 270.4 | 0.201 | 5.203 | 13.142 | 0.047 | 1.154 | 0.852 |
| 285.0 | 30.5 | 285.3 | 0.678 | 4.720 | 14.664 | 0.209 | 1.194 | 1.430 |
| 300.0 | 30.5 | 300.1 | 0.957 | 3.947 | 14.620 | 0.292 | 0.981 | 1.509 |
| 315.0 | 30.5 | 315.1 | 1.034 | 2.696 | 14.440 | 0.309 | 0.668 | 1.459 |
| 330.0 | 30.5 | 330.1 | 0.899 | 1.992 | 13.707 | 0.288 | 0.405 | 1.316 |
| 345.0 | 30.5 | 345.0 | 0.828 | 1.517 | 13.192 | 0.267 | 0.244 | 1.185 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.8: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 0.0 | -14.0 | 0.542 | 1.911 | 10.663 | 0.135 | 0.428 | 0.326 |
| 15.0 | -0.1 | -6.1 | 0.579 | 1.419 | 10.661 | 0.136 | 0.273 | 0.319 |
| 30.0 | -0.3 | 2.2 | 0.661 | 1.662 | 10.683 | 0.136 | 0.327 | 0.314 |
| 45.0 | -0.3 | 16.8 | 0.592 | 2.122 | 10.745 | 0.133 | 0.589 | 0.317 |
| 60.0 | -0.2 | 36.1 | 0.516 | 2.977 | 10.956 | 0.125 | 0.857 | 0.335 |
| 75.0 | -0.1 | 52.3 | 0.404 | 3.720 | 11.488 | 0.110 | 0.992 | 0.357 |
| 90.0 | -0.0 | 65.2 | 0.365 | 3.877 | 11.251 | 0.087 | 1.024 | 0.361 |
| 105.0 | -0.1 | 82.6 | 0.203 | 3.279 | 11.174 | 0.032 | 1.007 | 0.335 |
| 120.0 | -0.3 | 97.2 | 0.286 | 3.987 | 11.076 | 0.031 | 1.037 | 0.331 |
| 135.0 | -0.6 | 105.0 | 0.324 | 4.614 | 11.242 | 0.055 | 1.064 | 0.345 |
| 150.0 | -0.9 | 109.1 | 0.374 | 4.439 | 11.331 | 0.067 | 1.064 | 0.352 |
| 165.0 | -0.5 | 40.2 | 0.514 | 4.001 | 11.402 | 0.116 | 0.698 | 0.328 |
| 180.0 | -0.3 | 35.7 | 0.536 | 2.853 | 10.933 | 0.130 | 0.556 | 0.325 |
| 195.0 | 0.1 | 362.1 | 0.504 | 2.962 | 10.845 | 0.126 | 0.673 | 0.338 |
| 210.0 | 0.2 | 354.0 | 0.525 | 3.174 | 10.990 | 0.113 | 0.843 | 0.354 |
| 225.0 | 0.3 | 264.4 | 0.349 | 3.778 | 11.570 | 0.037 | 1.021 | 0.378 |
| 240.0 | 0.3 | 272.2 | 0.286 | 3.514 | 11.419 | 0.029 | 1.003 | 0.378 |
| 255.0 | 0.3 | 283.8 | 0.264 | 3.856 | 11.502 | 0.056 | 0.996 | 0.400 |
| 270.0 | 0.3 | 294.1 | 0.349 | 3.666 | 11.373 | 0.086 | 0.996 | 0.414 |
| 285.0 | 0.2 | 302.8 | 0.406 | 3.561 | 11.622 | 0.105 | 0.976 | 0.410 |
| 300.0 | 0.1 | 311.1 | 0.420 | 3.541 | 11.504 | 0.116 | 0.927 | 0.394 |
| 315.0 | 0.1 | 319.6 | 0.497 | 3.213 | 11.202 | 0.124 | 0.854 | 0.375 |
| 330.0 | 0.1 | 328.7 | 0.484 | 2.945 | 10.986 | 0.128 | 0.741 | 0.353 |
| 345.0 | 0.0 | 337.9 | 0.529 | 2.447 | 10.824 | 0.132 | 0.590 | 0.337 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.9: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.8 | -2.5 | 0.679 | 1.131 | 10.985 | 0.158 | 0.182 | 0.385 |
| 15.0 | 4.8 | 11.8 | 0.621 | 1.528 | 10.879 | 0.157 | 0.346 | 0.383 |
| 30.0 | 4.7 | 26.3 | 0.653 | 2.312 | 10.991 | 0.152 | 0.596 | 0.391 |
| 45.0 | 4.7 | 41.0 | 0.529 | 2.895 | 11.052 | 0.141 | 0.795 | 0.405 |
| 60.0 | 4.7 | 55.3 | 0.448 | 3.281 | 11.526 | 0.123 | 0.918 | 0.419 |
| 75.0 | 4.7 | 69.9 | 0.334 | 3.745 | 11.400 | 0.080 | 0.955 | 0.404 |
| 90.0 | 4.6 | 83.5 | 0.116 | 3.330 | 11.294 | 0.024 | 0.947 | 0.365 |
| 105.0 | 4.4 | 95.7 | 0.163 | 3.740 | 11.205 | 0.020 | 0.970 | 0.343 |
| 120.0 | 4.3 | 104.0 | 0.256 | 3.312 | 11.272 | 0.041 | 0.979 | 0.336 |
| 135.0 | 4.2 | 112.8 | 0.304 | 3.611 | 11.062 | 0.057 | 0.971 | 0.322 |
| 150.0 | 4.2 | 128.2 | 0.358 | 3.314 | 10.856 | 0.074 | 0.855 | 0.285 |
| 165.0 | 4.6 | 161.0 | 0.329 | 1.723 | 10.770 | 0.087 | 0.376 | 0.213 |
| 180.0 | 4.8 | 178.1 | 0.320 | 1.289 | 10.752 | 0.088 | 0.280 | 0.199 |
| 195.0 | 4.9 | 194.6 | 0.342 | 1.689 | 10.801 | 0.086 | 0.452 | 0.204 |
| 210.0 | 4.9 | 211.3 | 0.372 | 2.474 | 10.819 | 0.082 | 0.674 | 0.228 |
| 225.0 | 4.7 | 228.6 | 0.406 | 3.442 | 11.316 | 0.076 | 0.865 | 0.275 |
| 240.0 | 4.7 | 245.3 | 0.264 | 3.609 | 11.045 | 0.062 | 0.972 | 0.328 |
| 255.0 | 4.8 | 258.9 | 0.180 | 3.458 | 11.184 | 0.036 | 0.982 | 0.355 |
| 270.0 | 4.9 | 272.8 | 0.104 | 3.309 | 11.198 | 0.013 | 0.942 | 0.382 |
| 285.0 | 5.0 | 287.0 | 0.303 | 3.936 | 11.705 | 0.071 | 0.927 | 0.432 |
| 300.0 | 5.0 | 301.0 | 0.408 | 3.132 | 11.347 | 0.118 | 0.901 | 0.446 |
| 315.0 | 5.0 | 314.8 | 0.549 | 2.889 | 11.295 | 0.140 | 0.770 | 0.424 |
| 330.0 | 4.9 | 329.0 | 0.568 | 2.510 | 11.032 | 0.150 | 0.597 | 0.404 |
| 345.0 | 4.9 | 343.3 | 0.661 | 1.817 | 10.988 | 0.156 | 0.383 | 0.391 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.10: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 10.0 | -0.6 | 0.817 | 0.914 | 11.330 | 0.180 | 0.089 | 0.448 |
| 15.0 | 10.0 | 14.4 | 0.746 | 1.509 | 11.031 | 0.177 | 0.274 | 0.444 |
| 30.0 | 10.0 | 29.4 | 0.707 | 2.166 | 11.114 | 0.169 | 0.496 | 0.444 |
| 45.0 | 10.1 | 44.4 | 0.570 | 2.550 | 11.384 | 0.156 | 0.679 | 0.449 |
| 60.0 | 10.1 | 59.3 | 0.444 | 3.083 | 11.587 | 0.128 | 0.813 | 0.462 |
| 75.0 | 10.1 | 74.0 | 0.300 | 3.257 | 11.952 | 0.070 | 0.808 | 0.428 |
| 90.0 | 10.1 | 88.8 | 0.061 | 3.323 | 11.329 | 0.014 | 0.818 | 0.366 |
| 105.0 | 10.1 | 103.7 | 0.156 | 3.895 | 11.317 | 0.032 | 0.866 | 0.321 |
| 120.0 | 10.0 | 118.3 | 0.205 | 4.107 | 11.007 | 0.048 | 0.937 | 0.275 |
| 135.0 | 10.0 | 133.5 | 0.211 | 3.287 | 10.784 | 0.054 | 0.882 | 0.226 |
| 150.0 | 10.0 | 148.8 | 0.210 | 2.965 | 10.442 | 0.059 | 0.803 | 0.191 |
| 165.0 | 10.0 | 164.0 | 0.326 | 2.910 | 10.545 | 0.062 | 0.616 | 0.162 |
| 180.0 | 10.1 | 179.3 | 0.272 | 2.228 | 10.306 | 0.061 | 0.374 | 0.138 |
| 195.0 | 10.1 | 194.6 | 0.248 | 2.004 | 10.357 | 0.062 | 0.444 | 0.131 |
| 210.0 | 10.1 | 210.2 | 0.268 | 2.375 | 10.405 | 0.060 | 0.755 | 0.152 |
| 225.0 | 10.0 | 225.8 | 0.244 | 2.798 | 10.720 | 0.057 | 0.960 | 0.190 |
| 240.0 | 10.0 | 241.2 | 0.251 | 3.338 | 11.077 | 0.051 | 1.044 | 0.253 |
| 255.0 | 10.1 | 255.9 | 0.175 | 3.806 | 11.254 | 0.036 | 0.984 | 0.310 |
| 270.0 | 10.2 | 270.7 | 0.060 | 3.378 | 11.284 | 0.016 | 0.912 | 0.376 |
| 285.0 | 10.2 | 285.3 | 0.257 | 3.798 | 11.552 | 0.067 | 0.873 | 0.450 |
| 300.0 | 10.1 | 299.9 | 0.453 | 3.419 | 11.764 | 0.127 | 0.835 | 0.480 |
| 315.0 | 10.1 | 314.6 | 0.565 | 2.743 | 11.322 | 0.156 | 0.670 | 0.460 |
| 330.0 | 10.1 | 329.5 | 0.682 | 2.175 | 11.217 | 0.169 | 0.470 | 0.448 |
| 345.0 | 10.1 | 344.4 | 0.658 | 1.292 | 11.246 | 0.176 | 0.257 | 0.444 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.11: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.2 | -0.3 | 0.844 | 0.916 | 11.232 | 0.200 | 0.083 | 0.491 |
| 15.0 | 15.2 | 14.8 | 0.784 | 1.419 | 11.246 | 0.196 | 0.254 | 0.486 |
| 30.0 | 15.2 | 29.9 | 0.725 | 2.029 | 11.404 | 0.187 | 0.461 | 0.488 |
| 45.0 | 15.2 | 44.9 | 0.616 | 2.583 | 11.465 | 0.171 | 0.640 | 0.502 |
| 60.0 | 15.2 | 59.8 | 0.475 | 3.036 | 11.629 | 0.139 | 0.791 | 0.517 |
| 75.0 | 15.3 | 74.6 | 0.255 | 2.862 | 11.644 | 0.072 | 0.746 | 0.457 |
| 90.0 | 15.3 | 89.5 | 0.079 | 3.483 | 11.390 | 0.021 | 0.754 | 0.368 |
| 105.0 | 15.3 | 104.4 | 0.156 | 3.614 | 11.276 | 0.031 | 0.826 | 0.304 |
| 120.0 | 15.2 | 119.2 | 0.186 | 4.221 | 10.846 | 0.039 | 1.115 | 0.268 |
| 135.0 | 15.2 | 134.5 | 0.183 | 3.751 | 10.448 | 0.040 | 1.091 | 0.215 |
| 150.0 | 15.3 | 149.8 | 0.168 | 2.577 | 10.169 | 0.043 | 0.669 | 0.149 |
| 165.0 | 15.2 | 164.7 | 0.200 | 1.798 | 10.195 | 0.044 | 0.343 | 0.120 |
| 180.0 | 15.2 | 179.7 | 0.189 | 1.570 | 10.162 | 0.052 | 0.224 | 0.107 |
| 195.0 | 15.2 | 194.8 | 0.189 | 2.677 | 10.042 | 0.046 | 0.389 | 0.088 |
| 210.0 | 15.2 | 209.9 | 0.159 | 3.130 | 10.044 | 0.039 | 0.690 | 0.088 |
| 225.0 | 15.2 | 225.3 | 0.234 | 3.861 | 10.476 | 0.045 | 1.242 | 0.147 |
| 240.0 | 15.2 | 240.6 | 0.194 | 3.733 | 10.899 | 0.042 | 1.242 | 0.205 |
| 255.0 | 15.3 | 255.4 | 0.190 | 3.599 | 11.121 | 0.035 | 1.018 | 0.272 |
| 270.0 | 15.3 | 270.3 | 0.087 | 3.726 | 11.385 | 0.023 | 0.908 | 0.370 |
| 285.0 | 15.3 | 285.1 | 0.239 | 3.691 | 11.443 | 0.069 | 0.848 | 0.477 |
| 300.0 | 15.2 | 299.9 | 0.483 | 3.770 | 11.673 | 0.137 | 0.800 | 0.538 |
| 315.0 | 15.2 | 314.7 | 0.560 | 2.865 | 11.423 | 0.171 | 0.617 | 0.511 |
| 330.0 | 15.2 | 329.7 | 0.681 | 2.180 | 11.231 | 0.187 | 0.423 | 0.493 |
| 345.0 | 15.2 | 344.7 | 0.832 | 1.372 | 11.203 | 0.196 | 0.213 | 0.488 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.12: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.3 | -0.1 | 0.809 | 1.089 | 11.499 | 0.217 | 0.095 | 0.564 |
| 15.0 | 20.3 | 14.9 | 0.857 | 1.495 | 11.632 | 0.214 | 0.251 | 0.565 |
| 30.0 | 20.3 | 30.0 | 0.728 | 2.002 | 11.535 | 0.203 | 0.446 | 0.572 |
| 45.0 | 20.3 | 45.0 | 0.621 | 2.572 | 11.712 | 0.183 | 0.627 | 0.589 |
| 60.0 | 20.3 | 59.9 | 0.554 | 2.998 | 12.119 | 0.148 | 0.793 | 0.598 |
| 75.0 | 20.4 | 74.8 | 0.284 | 3.430 | 11.838 | 0.075 | 0.701 | 0.484 |
| 90.0 | 20.4 | 89.7 | 0.100 | 3.498 | 11.390 | 0.027 | 0.709 | 0.365 |
| 105.0 | 20.4 | 104.7 | 0.149 | 3.852 | 11.126 | 0.034 | 0.785 | 0.283 |
| 120.0 | 20.3 | 119.6 | 0.164 | 5.168 | 10.542 | 0.041 | 1.453 | 0.275 |
| 135.0 | 20.3 | 134.9 | 0.162 | 3.512 | 10.138 | 0.041 | 1.068 | 0.173 |
| 150.0 | 20.4 | 149.9 | 0.143 | 2.003 | 10.033 | 0.041 | 0.577 | 0.109 |
| 165.0 | 20.3 | 164.8 | 0.181 | 1.464 | 10.091 | 0.045 | 0.288 | 0.078 |
| 180.0 | 20.4 | 179.9 | 0.177 | 2.061 | 10.004 | 0.050 | 0.189 | 0.073 |
| 195.0 | 20.3 | 194.8 | 0.212 | 3.798 | 9.988 | 0.055 | 0.486 | 0.073 |
| 210.0 | 20.4 | 209.9 | 0.175 | 4.119 | 9.937 | 0.039 | 0.666 | 0.073 |
| 225.0 | 20.4 | 225.0 | 0.141 | 4.313 | 9.962 | 0.034 | 0.994 | 0.089 |
| 240.0 | 20.3 | 240.3 | 0.240 | 5.449 | 10.608 | 0.042 | 1.506 | 0.173 |
| 255.0 | 20.4 | 255.2 | 0.193 | 3.884 | 10.962 | 0.037 | 1.006 | 0.237 |
| 270.0 | 20.4 | 270.1 | 0.106 | 3.673 | 11.277 | 0.030 | 0.889 | 0.363 |
| 285.0 | 20.4 | 285.0 | 0.275 | 3.849 | 11.930 | 0.072 | 0.816 | 0.512 |
| 300.0 | 20.3 | 299.9 | 0.490 | 3.634 | 11.903 | 0.145 | 0.773 | 0.618 |
| 315.0 | 20.3 | 314.8 | 0.664 | 2.773 | 11.827 | 0.183 | 0.582 | 0.602 |
| 330.0 | 20.3 | 329.8 | 0.742 | 2.240 | 11.580 | 0.202 | 0.388 | 0.579 |
| 345.0 | 20.3 | 344.8 | 0.861 | 1.521 | 11.575 | 0.213 | 0.191 | 0.568 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.13: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 0.909 | 1.280 | 12.071 | 0.232 | 0.120 | 0.700 |
| 15.0 | 25.4 | 15.0 | 0.828 | 1.537 | 12.274 | 0.229 | 0.253 | 0.699 |
| 30.0 | 25.4 | 30.0 | 0.912 | 2.369 | 12.233 | 0.217 | 0.432 | 0.705 |
| 45.0 | 25.4 | 45.0 | 0.715 | 2.691 | 12.386 | 0.195 | 0.614 | 0.713 |
| 60.0 | 25.4 | 60.0 | 0.536 | 3.411 | 12.421 | 0.156 | 0.790 | 0.701 |
| 75.0 | 25.4 | 74.9 | 0.265 | 2.884 | 11.811 | 0.079 | 0.674 | 0.528 |
| 90.0 | 25.4 | 89.8 | 0.119 | 3.440 | 11.373 | 0.033 | 0.684 | 0.359 |
| 105.0 | 25.4 | 104.8 | 0.168 | 3.651 | 10.837 | 0.041 | 0.781 | 0.260 |
| 120.0 | 25.4 | 119.9 | 0.185 | 4.791 | 10.133 | 0.050 | 1.694 | 0.262 |
| 135.0 | 25.4 | 134.9 | 0.183 | 4.159 | 9.975 | 0.050 | 0.998 | 0.135 |
| 150.0 | 25.4 | 149.9 | 0.165 | 2.239 | 9.945 | 0.055 | 0.652 | 0.087 |
| 165.0 | 25.5 | 164.9 | 0.215 | 1.852 | 9.966 | 0.067 | 0.361 | 0.071 |
| 180.0 | 25.5 | 179.9 | 0.250 | 2.128 | 10.024 | 0.069 | 0.195 | 0.060 |
| 195.0 | 25.5 | 195.0 | 0.186 | 2.294 | 9.946 | 0.061 | 0.358 | 0.057 |
| 210.0 | 25.5 | 210.0 | 0.152 | 3.782 | 9.886 | 0.045 | 0.625 | 0.080 |
| 225.0 | 25.4 | 225.0 | 0.133 | 4.343 | 9.902 | 0.043 | 1.106 | 0.115 |
| 240.0 | 25.4 | 240.1 | 0.174 | 6.409 | 9.940 | 0.043 | 1.564 | 0.158 |
| 255.0 | 25.4 | 255.1 | 0.207 | 4.338 | 10.914 | 0.042 | 0.958 | 0.207 |
| 270.0 | 25.4 | 270.1 | 0.126 | 3.438 | 11.032 | 0.036 | 0.831 | 0.354 |
| 285.0 | 25.4 | 285.0 | 0.267 | 4.175 | 11.770 | 0.075 | 0.765 | 0.551 |
| 300.0 | 25.4 | 299.9 | 0.511 | 3.646 | 12.425 | 0.151 | 0.745 | 0.716 |
| 315.0 | 25.4 | 314.9 | 0.707 | 2.662 | 12.130 | 0.192 | 0.549 | 0.722 |
| 330.0 | 25.4 | 329.9 | 0.842 | 2.316 | 12.086 | 0.215 | 0.364 | 0.713 |
| 345.0 | 25.4 | 344.9 | 0.987 | 1.557 | 12.182 | 0.228 | 0.189 | 0.703 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.14: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 4.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.035 | 1.457 | 12.834 | 0.245 | 0.152 | 0.876 |
| 15.0 | 30.5 | 15.0 | 0.913 | 1.741 | 12.571 | 0.241 | 0.259 | 0.873 |
| 30.0 | 30.5 | 30.0 | 0.829 | 2.369 | 12.636 | 0.227 | 0.421 | 0.868 |
| 45.0 | 30.5 | 45.0 | 0.703 | 2.880 | 12.557 | 0.204 | 0.592 | 0.856 |
| 60.0 | 30.5 | 60.0 | 0.577 | 3.354 | 12.514 | 0.163 | 0.783 | 0.811 |
| 75.0 | 30.5 | 74.9 | 0.274 | 3.172 | 12.024 | 0.083 | 0.641 | 0.573 |
| 90.0 | 30.5 | 89.9 | 0.137 | 3.315 | 11.368 | 0.038 | 0.677 | 0.351 |
| 105.0 | 30.5 | 104.9 | 0.202 | 3.450 | 10.680 | 0.049 | 0.850 | 0.240 |
| 120.0 | 30.4 | 119.9 | 0.261 | 5.982 | 10.016 | 0.064 | 1.778 | 0.247 |
| 135.0 | 30.5 | 134.9 | 0.206 | 3.361 | 9.927 | 0.060 | 1.004 | 0.118 |
| 150.0 | 30.6 | 149.8 | 0.287 | 2.694 | 9.943 | 0.086 | 0.666 | 0.091 |
| 165.0 | 30.7 | 164.9 | 0.293 | 2.055 | 9.972 | 0.094 | 0.365 | 0.056 |
| 180.0 | 30.6 | 179.8 | 0.371 | 2.129 | 9.902 | 0.102 | 0.280 | 0.047 |
| 195.0 | 30.7 | 195.0 | 0.287 | 2.973 | 9.898 | 0.091 | 0.460 | 0.062 |
| 210.0 | 30.6 | 210.1 | 0.319 | 3.689 | 9.905 | 0.077 | 0.700 | 0.081 |
| 225.0 | 30.5 | 225.0 | 0.241 | 4.768 | 9.925 | 0.055 | 1.032 | 0.136 |
| 240.0 | 30.5 | 240.0 | 0.200 | 5.624 | 9.879 | 0.048 | 1.457 | 0.143 |
| 255.0 | 30.5 | 255.1 | 0.187 | 4.055 | 10.637 | 0.050 | 0.899 | 0.181 |
| 270.0 | 30.5 | 270.0 | 0.154 | 3.325 | 11.085 | 0.042 | 0.761 | 0.345 |
| 285.0 | 30.5 | 285.0 | 0.269 | 4.290 | 12.099 | 0.079 | 0.709 | 0.601 |
| 300.0 | 30.5 | 299.9 | 0.511 | 3.970 | 12.797 | 0.157 | 0.718 | 0.823 |
| 315.0 | 30.5 | 314.9 | 0.742 | 3.113 | 12.615 | 0.200 | 0.531 | 0.861 |
| 330.0 | 30.5 | 329.9 | 0.874 | 2.394 | 12.762 | 0.226 | 0.356 | 0.874 |
| 345.0 | 30.5 | 344.9 | 0.957 | 1.674 | 12.683 | 0.240 | 0.209 | 0.874 |
| Wind at 20.8 knots (10.7 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.15: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -21.2 | 1.334 | 3.824 | 11.609 | 0.282 | 0.673 | 0.732 |
| 15.0 | -0.2 | -12.9 | 1.243 | 2.706 | 11.534 | 0.280 | 0.456 | 0.703 |
| 30.0 | -0.5 | -0.8 | 1.206 | 2.192 | 11.387 | 0.275 | 0.351 | 0.665 |
| 45.0 | -0.9 | 12.3 | 1.290 | 3.279 | 11.322 | 0.273 | 0.653 | 0.645 |
| 60.0 | -1.1 | 23.7 | 1.118 | 4.372 | 12.143 | 0.271 | 0.962 | 0.653 |
| 75.0 | -1.8 | 34.8 | 1.534 | 7.679 | 13.936 | 0.265 | 1.336 | 0.709 |
| 90.0 | -2.2 | -14.4 | 1.238 | 11.559 | 13.519 | 0.261 | 1.630 | 0.742 |
| 105.0 | -1.6 | -3.1 | 1.399 | 11.138 | 13.387 | 0.263 | 1.556 | 0.734 |
| 120.0 | -1.2 | 13.1 | 1.035 | 8.960 | 13.682 | 0.236 | 1.489 | 0.712 |
| 135.0 | -3.2 | 107.2 | 1.914 | 13.262 | 13.909 | 0.221 | 1.848 | 0.895 |
| 150.0 | -4.1 | 109.6 | 0.993 | 9.289 | 13.887 | 0.224 | 1.801 | 0.896 |
| 165.0 | -3.7 | 111.5 | 2.488 | 11.036 | 13.321 | 0.233 | 1.760 | 0.879 |
| 180.0 | -0.8 | 153.3 | 0.864 | 7.289 | 12.690 | 0.217 | 0.731 | 0.588 |
| 195.0 | -0.3 | 17.5 | 1.257 | 6.577 | 13.184 | 0.277 | 0.964 | 0.763 |
| 210.0 | -0.3 | 387.8 | 1.224 | 6.074 | 13.311 | 0.280 | 1.101 | 0.802 |
| 225.0 | -0.3 | 393.4 | 1.147 | 5.706 | 12.828 | 0.282 | 1.248 | 0.834 |
| 240.0 | -0.1 | 392.3 | 1.132 | 7.043 | 13.895 | 0.281 | 1.389 | 0.881 |
| 255.0 | 0.5 | 310.5 | 1.363 | 7.048 | 15.064 | 0.269 | 1.610 | 0.970 |
| 270.0 | -0.1 | 314.6 | 1.947 | 6.861 | 14.509 | 0.275 | 1.583 | 0.952 |
| 285.0 | -0.2 | 305.4 | 1.359 | 5.941 | 13.846 | 0.283 | 1.438 | 0.918 |
| 300.0 | -0.3 | 310.6 | 1.139 | 7.537 | 13.807 | 0.285 | 1.329 | 0.877 |
| 315.0 | -0.2 | 316.2 | 1.184 | 5.498 | 12.971 | 0.289 | 1.238 | 0.845 |
| 330.0 | -0.1 | 323.1 | 1.297 | 5.801 | 12.491 | 0.288 | 1.040 | 0.805 |
| 345.0 | -0.1 | 330.8 | 1.333 | 5.315 | 11.890 | 0.285 | 0.862 | 0.770 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.16: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.0 | -12.7 | 1.400 | 3.082 | 11.710 | 0.316 | 0.445 | 0.814 |
| 15.0 | 3.9 | -1.6 | 1.310 | 2.423 | 12.016 | 0.312 | 0.354 | 0.793 |
| 30.0 | 3.9 | 10.9 | 1.453 | 2.365 | 11.801 | 0.311 | 0.403 | 0.786 |
| 45.0 | 3.8 | 22.6 | 1.474 | 3.183 | 11.756 | 0.313 | 0.609 | 0.794 |
| 60.0 | 3.8 | 32.4 | 1.327 | 3.766 | 12.039 | 0.312 | 0.856 | 0.814 |
| 75.0 | 3.7 | 39.8 | 1.383 | 5.467 | 12.793 | 0.309 | 1.045 | 0.834 |
| 90.0 | 3.6 | 42.9 | 1.253 | 7.586 | 13.647 | 0.307 | 1.136 | 0.847 |
| 105.0 | 3.6 | 45.4 | 1.227 | 10.773 | 15.374 | 0.304 | 1.220 | 0.866 |
| 120.0 | 3.7 | 45.3 | 1.414 | 12.531 | 13.280 | 0.308 | 1.224 | 0.881 |
| 135.0 | 3.7 | 42.8 | 1.355 | 5.272 | 12.535 | 0.308 | 1.096 | 0.867 |
| 150.0 | 3.7 | 44.0 | 1.357 | 5.590 | 12.809 | 0.309 | 1.068 | 0.879 |
| 165.0 | 3.8 | 51.5 | 1.192 | 6.387 | 12.686 | 0.307 | 1.136 | 0.879 |
| 180.0 | 4.7 | 178.8 | 0.622 | 2.308 | 11.493 | 0.154 | 0.466 | 0.313 |
| 195.0 | 4.6 | 196.7 | 0.614 | 2.448 | 11.581 | 0.157 | 0.629 | 0.360 |
| 210.0 | 4.1 | 373.7 | 1.355 | 5.837 | 13.990 | 0.315 | 0.923 | 0.858 |
| 225.0 | 4.4 | 300.1 | 1.134 | 7.665 | 14.883 | 0.290 | 1.429 | 0.969 |
| 240.0 | 4.5 | 289.0 | 1.192 | 7.710 | 15.144 | 0.262 | 1.639 | 1.086 |
| 255.0 | 4.4 | 290.4 | 1.257 | 8.085 | 15.414 | 0.272 | 1.664 | 1.109 |
| 270.0 | 4.3 | 294.0 | 2.149 | 7.045 | 15.453 | 0.289 | 1.590 | 1.082 |
| 285.0 | 4.4 | 296.8 | 1.396 | 7.618 | 16.085 | 0.296 | 1.542 | 1.059 |
| 300.0 | 4.6 | 302.9 | 1.457 | 5.387 | 14.079 | 0.312 | 1.405 | 1.015 |
| 315.0 | 4.6 | 314.4 | 1.273 | 5.110 | 12.473 | 0.323 | 1.138 | 0.943 |
| 330.0 | 4.5 | 326.6 | 1.405 | 5.667 | 12.619 | 0.325 | 0.850 | 0.892 |
| 345.0 | 4.3 | 338.2 | 1.373 | 3.357 | 12.146 | 0.320 | 0.602 | 0.848 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.17: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s² | Lat m/s² | Vert m/s² | Long m/s² | Lat m/s² | Vert m/s² |
| 0.0 | 9.7 | -1.2 | 1.472 | 1.925 | 12.059 | 0.349 | 0.264 | 0.935 |
| 15.0 | 9.7 | 13.7 | 1.499 | 2.377 | 11.957 | 0.350 | 0.359 | 0.936 |
| 30.0 | 9.7 | 28.7 | 1.353 | 2.883 | 12.359 | 0.354 | 0.625 | 0.958 |
| 45.0 | 9.7 | 43.7 | 1.451 | 4.080 | 12.847 | 0.350 | 0.960 | 0.987 |
| 60.0 | 9.7 | 58.1 | 1.150 | 5.993 | 13.453 | 0.325 | 1.295 | 1.040 |
| 75.0 | 9.7 | 71.5 | 1.237 | 8.613 | 15.511 | 0.271 | 1.515 | 1.148 |
| 90.0 | 8.7 | 77.7 | 1.294 | 9.382 | 15.225 | 0.214 | 1.591 | 1.137 |
| 105.0 | 8.6 | 81.7 | 0.869 | 10.060 | 14.939 | 0.169 | 1.627 | 1.087 |
| 120.0 | 8.5 | 85.6 | 0.894 | 9.949 | 15.098 | 0.140 | 1.675 | 1.033 |
| 135.0 | 8.5 | 100.0 | 0.893 | 10.177 | 14.522 | 0.128 | 1.677 | 0.848 |
| 150.0 | 9.3 | 145.5 | 0.519 | 4.163 | 10.947 | 0.118 | 1.420 | 0.281 |
| 165.0 | 9.7 | 162.2 | 0.348 | 4.250 | 10.613 | 0.110 | 1.285 | 0.228 |
| 180.0 | 9.9 | 178.2 | 0.371 | 4.200 | 10.393 | 0.106 | 0.978 | 0.173 |
| 195.0 | 10.0 | 194.6 | 0.378 | 3.296 | 10.748 | 0.110 | 0.864 | 0.170 |
| 210.0 | 9.8 | 211.6 | 0.448 | 3.828 | 10.965 | 0.118 | 1.284 | 0.257 |
| 225.0 | 8.9 | 239.9 | 0.979 | 7.926 | 13.280 | 0.140 | 1.630 | 0.572 |
| 240.0 | 8.5 | 268.0 | 1.439 | 12.949 | 16.005 | 0.145 | 1.824 | 0.995 |
| 255.0 | 8.5 | 273.6 | 1.405 | 9.845 | 15.489 | 0.137 | 1.719 | 1.067 |
| 270.0 | 9.0 | 279.6 | 1.839 | 8.651 | 14.644 | 0.184 | 1.661 | 1.209 |
| 285.0 | 9.9 | 287.8 | 1.442 | 6.689 | 15.815 | 0.274 | 1.610 | 1.261 |
| 300.0 | 9.9 | 300.3 | 1.133 | 5.204 | 13.322 | 0.329 | 1.374 | 1.117 |
| 315.0 | 9.8 | 314.3 | 1.516 | 4.774 | 12.974 | 0.356 | 1.062 | 1.025 |
| 330.0 | 9.7 | 329.0 | 1.559 | 3.763 | 12.458 | 0.359 | 0.721 | 0.981 |
| 345.0 | 9.7 | 343.9 | 1.463 | 2.605 | 12.018 | 0.354 | 0.429 | 0.947 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.18: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.443 | 1.837 | 12.415 | 0.382 | 0.242 | 1.010 |
| 15.0 | 15.0 | 14.6 | 1.399 | 2.078 | 12.633 | 0.384 | 0.359 | 1.020 |
| 30.0 | 15.0 | 29.6 | 1.415 | 2.791 | 12.581 | 0.387 | 0.614 | 1.061 |
| 45.0 | 15.0 | 44.7 | 1.373 | 3.840 | 12.762 | 0.378 | 0.933 | 1.100 |
| 60.0 | 15.0 | 59.4 | 1.394 | 6.177 | 14.205 | 0.345 | 1.253 | 1.192 |
| 75.0 | 15.1 | 73.6 | 1.189 | 7.474 | 15.826 | 0.267 | 1.408 | 1.293 |
| 90.0 | 14.8 | 87.3 | 0.940 | 9.618 | 16.330 | 0.093 | 1.411 | 1.038 |
| 105.0 | 14.6 | 101.8 | 0.621 | 10.998 | 14.032 | 0.109 | 1.690 | 0.747 |
| 120.0 | 14.5 | 115.8 | 0.681 | 11.115 | 14.138 | 0.092 | 1.861 | 0.575 |
| 135.0 | 14.9 | 133.2 | 0.403 | 5.594 | 11.347 | 0.078 | 1.862 | 0.381 |
| 150.0 | 15.0 | 149.1 | 0.373 | 4.403 | 10.696 | 0.090 | 1.335 | 0.268 |
| 165.0 | 15.0 | 164.2 | 0.385 | 3.606 | 10.545 | 0.089 | 0.755 | 0.169 |
| 180.0 | 15.1 | 179.2 | 0.483 | 3.415 | 10.428 | 0.095 | 0.578 | 0.136 |
| 195.0 | 15.0 | 194.5 | 0.303 | 4.735 | 10.139 | 0.099 | 0.870 | 0.102 |
| 210.0 | 15.0 | 209.7 | 0.294 | 4.626 | 10.229 | 0.082 | 1.285 | 0.119 |
| 225.0 | 15.0 | 226.9 | 0.611 | 7.473 | 12.798 | 0.085 | 2.007 | 0.279 |
| 240.0 | 14.4 | 244.9 | 0.854 | 10.070 | 13.066 | 0.111 | 2.001 | 0.550 |
| 255.0 | 14.4 | 259.4 | 1.365 | 11.895 | 17.034 | 0.126 | 1.890 | 0.785 |
| 270.0 | 14.7 | 273.0 | 0.631 | 9.459 | 15.156 | 0.086 | 1.701 | 1.124 |
| 285.0 | 15.2 | 286.3 | 1.119 | 6.936 | 15.433 | 0.266 | 1.613 | 1.393 |
| 300.0 | 15.1 | 300.0 | 1.279 | 5.974 | 14.161 | 0.344 | 1.354 | 1.255 |
| 315.0 | 15.0 | 314.5 | 1.443 | 4.120 | 12.901 | 0.379 | 0.992 | 1.131 |
| 330.0 | 15.0 | 329.5 | 1.458 | 3.333 | 12.768 | 0.390 | 0.663 | 1.076 |
| 345.0 | 15.0 | 344.5 | 1.508 | 2.324 | 12.492 | 0.385 | 0.380 | 1.029 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.19: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s² | Lat m/s² | Vert m/s² | Long m/s² | Lat m/s² | Vert m/s² |
| 0.0 | 20.2 | -0.2 | 1.386 | 1.885 | 13.346 | 0.410 | 0.262 | 1.197 |
| 15.0 | 20.2 | 14.8 | 1.462 | 2.484 | 13.151 | 0.412 | 0.364 | 1.203 |
| 30.0 | 20.2 | 29.8 | 1.505 | 3.236 | 13.294 | 0.415 | 0.612 | 1.251 |
| 45.0 | 20.2 | 44.9 | 1.489 | 4.814 | 13.436 | 0.403 | 0.911 | 1.296 |
| 60.0 | 20.2 | 59.7 | 1.216 | 6.043 | 14.231 | 0.361 | 1.212 | 1.379 |
| 75.0 | 20.3 | 74.2 | 1.110 | 7.243 | 15.726 | 0.268 | 1.334 | 1.416 |
| 90.0 | 20.1 | 88.5 | 0.789 | 9.370 | 15.862 | 0.077 | 1.357 | 1.018 |
| 105.0 | 20.1 | 103.6 | 0.567 | 10.848 | 13.615 | 0.093 | 1.722 | 0.662 |
| 120.0 | 20.1 | 118.8 | 0.298 | 7.050 | 11.531 | 0.066 | 2.264 | 0.525 |
| 135.0 | 20.1 | 134.5 | 0.310 | 6.089 | 10.818 | 0.081 | 1.979 | 0.335 |
| 150.0 | 20.2 | 149.6 | 0.690 | 4.073 | 10.722 | 0.110 | 1.205 | 0.191 |
| 165.0 | 20.3 | 164.2 | 0.669 | 3.774 | 10.248 | 0.115 | 0.691 | 0.147 |
| 180.0 | 20.6 | 179.6 | 0.705 | 3.829 | 10.131 | 0.105 | 0.516 | 0.107 |
| 195.0 | 20.4 | 194.5 | 0.746 | 4.693 | 9.967 | 0.101 | 0.929 | 0.179 |
| 210.0 | 20.2 | 210.0 | 0.612 | 6.607 | 9.943 | 0.095 | 1.449 | 0.228 |
| 225.0 | 20.1 | 225.4 | 0.356 | 6.117 | 10.970 | 0.071 | 2.032 | 0.267 |
| 240.0 | 20.1 | 241.3 | 0.378 | 7.133 | 11.996 | 0.076 | 2.471 | 0.366 |
| 255.0 | 19.9 | 257.2 | 0.794 | 16.585 | 15.088 | 0.106 | 2.014 | 0.666 |
| 270.0 | 20.0 | 271.7 | 1.237 | 10.125 | 15.228 | 0.083 | 1.771 | 1.115 |
| 285.0 | 20.3 | 285.8 | 1.216 | 6.961 | 15.857 | 0.261 | 1.650 | 1.508 |
| 300.0 | 20.3 | 300.0 | 1.225 | 5.484 | 14.166 | 0.356 | 1.348 | 1.438 |
| 315.0 | 20.2 | 314.8 | 1.414 | 3.571 | 13.399 | 0.400 | 0.972 | 1.331 |
| 330.0 | 20.2 | 329.8 | 1.494 | 2.886 | 13.588 | 0.414 | 0.638 | 1.273 |
| 345.0 | 20.2 | 344.8 | 1.485 | 2.008 | 13.447 | 0.413 | 0.378 | 1.214 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.20: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.4 | -0.1 | 1.483 | 2.270 | 14.249 | 0.429 | 0.309 | 1.482 |
| 15.0 | 25.4 | 14.9 | 1.497 | 2.711 | 14.229 | 0.431 | 0.381 | 1.491 |
| 30.0 | 25.4 | 29.9 | 1.445 | 3.889 | 14.118 | 0.434 | 0.607 | 1.530 |
| 45.0 | 25.3 | 44.9 | 1.502 | 5.204 | 14.265 | 0.421 | 0.895 | 1.552 |
| 60.0 | 25.3 | 59.8 | 1.242 | 5.395 | 14.445 | 0.373 | 1.186 | 1.585 |
| 75.0 | 25.3 | 74.4 | 1.220 | 8.805 | 16.756 | 0.272 | 1.302 | 1.550 |
| 90.0 | 25.2 | 89.0 | 1.150 | 9.637 | 14.823 | 0.077 | 1.345 | 1.011 |
| 105.0 | 25.2 | 104.3 | 0.575 | 12.228 | 12.965 | 0.089 | 2.136 | 0.633 |
| 120.0 | 25.1 | 119.3 | 0.421 | 7.906 | 12.433 | 0.087 | 2.741 | 0.546 |
| 135.0 | 25.1 | 134.7 | 0.773 | 5.653 | 10.527 | 0.106 | 1.912 | 0.276 |
| 150.0 | 25.3 | 149.6 | 0.923 | 4.118 | 10.292 | 0.120 | 1.035 | 0.157 |
| 165.0 | 25.7 | 164.6 | 0.783 | 3.567 | 10.093 | 0.115 | 0.550 | 0.121 |
| 180.0 | 25.5 | 179.7 | 0.821 | 4.146 | 10.136 | 0.119 | 0.653 | 0.162 |
| 195.0 | 25.7 | 195.1 | 0.445 | 4.053 | 10.043 | 0.108 | 0.694 | 0.133 |
| 210.0 | 25.4 | 210.2 | 0.779 | 4.790 | 9.983 | 0.112 | 1.133 | 0.181 |
| 225.0 | 25.0 | 225.8 | 0.779 | 7.805 | 11.549 | 0.114 | 2.228 | 0.378 |
| 240.0 | 25.2 | 240.7 | 0.397 | 7.880 | 10.966 | 0.079 | 3.049 | 0.433 |
| 255.0 | 25.2 | 256.0 | 0.472 | 10.857 | 13.204 | 0.096 | 2.165 | 0.545 |
| 270.0 | 25.2 | 271.1 | 0.892 | 10.971 | 14.453 | 0.079 | 1.820 | 1.092 |
| 285.0 | 25.4 | 285.6 | 1.212 | 8.700 | 16.642 | 0.259 | 1.731 | 1.625 |
| 300.0 | 25.4 | 300.1 | 1.194 | 4.917 | 14.832 | 0.362 | 1.377 | 1.635 |
| 315.0 | 25.4 | 314.9 | 1.357 | 3.724 | 14.588 | 0.413 | 0.995 | 1.589 |
| 330.0 | 25.4 | 329.9 | 1.502 | 2.760 | 14.400 | 0.430 | 0.665 | 1.551 |
| 345.0 | 25.4 | 344.9 | 1.348 | 2.257 | 14.412 | 0.429 | 0.418 | 1.498 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.21: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 9.3$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.309 | 2.520 | 15.145 | 0.436 | 0.378 | 1.805 |
| 15.0 | 30.5 | 14.9 | 1.414 | 3.147 | 15.253 | 0.440 | 0.418 | 1.817 |
| 30.0 | 30.5 | 29.9 | 1.392 | 4.966 | 15.509 | 0.446 | 0.621 | 1.849 |
| 45.0 | 30.5 | 44.9 | 1.401 | 6.162 | 15.365 | 0.435 | 0.896 | 1.844 |
| 60.0 | 30.4 | 59.8 | 1.413 | 6.346 | 15.455 | 0.385 | 1.173 | 1.809 |
| 75.0 | 30.4 | 74.5 | 1.023 | 8.708 | 16.269 | 0.271 | 1.277 | 1.657 |
| 90.0 | 30.4 | 89.3 | 0.930 | 10.451 | 14.962 | 0.076 | 1.395 | 1.004 |
| 105.0 | 30.3 | 104.5 | 0.490 | 8.908 | 12.177 | 0.090 | 2.379 | 0.583 |
| 120.0 | 30.1 | 119.4 | 0.515 | 7.632 | 11.290 | 0.114 | 2.756 | 0.485 |
| 135.0 | 30.2 | 134.6 | 0.576 | 5.690 | 10.050 | 0.125 | 1.761 | 0.259 |
| 150.0 | 31.0 | 149.1 | 0.658 | 5.409 | 10.251 | 0.133 | 0.991 | 0.215 |
| 165.0 | 30.1 | 164.8 | 1.108 | 4.268 | 10.465 | 0.148 | 0.763 | 0.216 |
| 180.0 | 30.6 | 179.4 | 1.140 | 4.632 | 10.474 | 0.142 | 0.906 | 0.269 |
| 195.0 | 30.2 | 194.5 | 1.182 | 5.351 | 10.279 | 0.154 | 1.056 | 0.275 |
| 210.0 | 31.1 | 210.4 | 1.098 | 6.081 | 10.395 | 0.133 | 1.257 | 0.210 |
| 225.0 | 30.4 | 225.3 | 0.459 | 6.629 | 10.009 | 0.120 | 1.672 | 0.263 |
| 240.0 | 29.9 | 241.2 | 0.678 | 11.966 | 14.044 | 0.134 | 3.303 | 0.596 |
| 255.0 | 30.3 | 255.5 | 0.408 | 10.711 | 13.145 | 0.097 | 2.568 | 0.527 |
| 270.0 | 30.4 | 270.7 | 0.717 | 10.633 | 14.404 | 0.080 | 1.792 | 1.070 |
| 285.0 | 30.5 | 285.4 | 1.070 | 7.878 | 16.679 | 0.257 | 1.841 | 1.737 |
| 300.0 | 30.5 | 300.1 | 1.243 | 5.422 | 15.372 | 0.369 | 1.461 | 1.850 |
| 315.0 | 30.5 | 315.1 | 1.429 | 4.094 | 15.537 | 0.421 | 1.079 | 1.872 |
| 330.0 | 30.5 | 330.1 | 1.430 | 3.107 | 15.692 | 0.440 | 0.723 | 1.873 |
| 345.0 | 30.5 | 345.0 | 1.357 | 2.401 | 15.194 | 0.441 | 0.488 | 1.823 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.22: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.1 | -18.5 | 0.869 | 3.698 | 11.157 | 0.201 | 0.730 | 0.502 |
| 15.0 | -0.5 | -12.0 | 1.083 | 3.271 | 11.270 | 0.202 | 0.645 | 0.491 |
| 30.0 | -0.8 | -3.6 | 1.001 | 3.225 | 11.152 | 0.201 | 0.682 | 0.481 |
| 45.0 | -1.2 | -58.6 | 0.766 | 5.497 | 12.093 | 0.148 | 1.381 | 0.517 |
| 60.0 | -0.3 | 32.5 | 0.699 | 4.404 | 11.739 | 0.190 | 1.095 | 0.506 |
| 75.0 | -0.1 | 49.5 | 0.663 | 4.924 | 12.445 | 0.170 | 1.295 | 0.535 |
| 90.0 | 0.2 | 65.1 | 0.550 | 4.735 | 12.244 | 0.130 | 1.356 | 0.542 |
| 105.0 | -0.0 | 88.9 | 0.293 | 5.595 | 12.052 | 0.034 | 1.374 | 0.503 |
| 120.0 | -0.7 | 99.4 | 0.404 | 5.477 | 11.900 | 0.060 | 1.423 | 0.515 |
| 135.0 | -1.3 | 106.4 | 0.473 | 5.921 | 12.283 | 0.089 | 1.454 | 0.534 |
| 150.0 | -1.8 | 109.3 | 0.570 | 7.110 | 12.256 | 0.105 | 1.448 | 0.542 |
| 165.0 | -1.4 | 56.9 | 0.840 | 4.618 | 11.805 | 0.154 | 1.178 | 0.500 |
| 180.0 | -0.9 | 37.8 | 0.987 | 4.357 | 11.748 | 0.190 | 0.893 | 0.496 |
| 195.0 | -0.1 | 374.4 | 0.733 | 4.083 | 11.512 | 0.192 | 0.948 | 0.516 |
| 210.0 | 0.1 | 378.5 | 0.877 | 4.661 | 11.573 | 0.180 | 1.093 | 0.536 |
| 225.0 | 0.3 | 365.6 | 0.735 | 4.801 | 11.781 | 0.163 | 1.281 | 0.560 |
| 240.0 | 0.6 | 277.2 | 0.431 | 5.721 | 11.847 | 0.062 | 1.367 | 0.564 |
| 255.0 | 0.5 | 285.1 | 0.412 | 5.589 | 12.375 | 0.093 | 1.353 | 0.585 |
| 270.0 | 0.5 | 293.6 | 0.515 | 5.662 | 12.615 | 0.128 | 1.332 | 0.605 |
| 285.0 | 0.4 | 300.7 | 0.695 | 5.235 | 12.593 | 0.153 | 1.289 | 0.605 |
| 300.0 | 0.3 | 309.0 | 0.767 | 5.028 | 12.346 | 0.172 | 1.252 | 0.592 |
| 315.0 | 0.2 | 316.0 | 0.766 | 4.825 | 12.302 | 0.184 | 1.157 | 0.572 |
| 330.0 | 0.1 | 324.5 | 0.799 | 4.934 | 11.707 | 0.191 | 1.063 | 0.546 |
| 345.0 | 0.0 | 332.4 | 0.842 | 3.956 | 11.571 | 0.197 | 0.893 | 0.523 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.23: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 4.2 | -12.0 | 1.033 | 3.573 | 11.352 | 0.236 | 0.628 | 0.571 |
| 15.0 | 4.0 | -7.0 | 0.962 | 3.432 | 11.302 | 0.236 | 0.596 | 0.564 |
| 30.0 | 3.9 | 0.5 | 1.015 | 2.724 | 11.281 | 0.236 | 0.610 | 0.561 |
| 45.0 | 3.9 | 11.1 | 1.022 | 2.975 | 11.454 | 0.231 | 0.709 | 0.560 |
| 60.0 | 4.0 | 29.4 | 0.955 | 4.372 | 11.808 | 0.219 | 1.029 | 0.585 |
| 75.0 | 4.1 | 49.3 | 0.756 | 5.148 | 12.460 | 0.193 | 1.253 | 0.612 |
| 90.0 | 4.2 | 61.7 | 0.642 | 5.309 | 12.372 | 0.156 | 1.355 | 0.617 |
| 105.0 | 4.3 | 78.3 | 0.383 | 4.981 | 12.526 | 0.076 | 1.332 | 0.569 |
| 120.0 | 4.1 | 92.0 | 0.373 | 5.898 | 12.040 | 0.035 | 1.331 | 0.528 |
| 135.0 | 4.0 | 100.0 | 0.479 | 5.985 | 12.693 | 0.052 | 1.362 | 0.516 |
| 150.0 | 3.9 | 53.6 | 0.852 | 4.275 | 12.090 | 0.186 | 1.244 | 0.587 |
| 165.0 | 4.0 | 54.1 | 0.826 | 4.315 | 12.332 | 0.194 | 1.195 | 0.592 |
| 180.0 | 4.0 | 63.4 | 0.714 | 4.948 | 12.491 | 0.192 | 1.221 | 0.590 |
| 195.0 | 4.7 | 195.6 | 0.563 | 3.196 | 11.535 | 0.129 | 0.709 | 0.307 |
| 210.0 | 4.4 | 219.3 | 0.631 | 4.137 | 11.595 | 0.122 | 1.034 | 0.376 |
| 225.0 | 4.3 | 251.8 | 0.520 | 6.938 | 11.915 | 0.083 | 1.368 | 0.512 |
| 240.0 | 4.3 | 260.6 | 0.428 | 5.922 | 11.859 | 0.059 | 1.384 | 0.534 |
| 255.0 | 4.4 | 270.2 | 0.298 | 5.211 | 11.924 | 0.037 | 1.374 | 0.558 |
| 270.0 | 4.6 | 280.1 | 0.368 | 6.918 | 12.499 | 0.066 | 1.351 | 0.601 |
| 285.0 | 4.8 | 290.4 | 0.634 | 5.937 | 12.754 | 0.126 | 1.332 | 0.645 |
| 300.0 | 4.9 | 302.4 | 0.681 | 4.521 | 12.178 | 0.181 | 1.251 | 0.654 |
| 315.0 | 4.8 | 314.6 | 0.892 | 4.228 | 11.983 | 0.209 | 1.086 | 0.628 |
| 330.0 | 4.8 | 327.8 | 0.815 | 4.364 | 11.608 | 0.224 | 0.895 | 0.601 |
| 345.0 | 4.5 | 339.9 | 0.982 | 3.274 | 11.502 | 0.233 | 0.704 | 0.584 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.24: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.8 | -1.3 | 1.135 | 1.994 | 11.835 | 0.267 | 0.242 | 0.658 |
| 15.0 | 9.8 | 13.7 | 1.339 | 2.207 | 11.961 | 0.264 | 0.447 | 0.662 |
| 30.0 | 9.8 | 28.7 | 1.213 | 3.107 | 11.941 | 0.252 | 0.737 | 0.664 |
| 45.0 | 9.9 | 43.8 | 0.875 | 3.650 | 11.814 | 0.231 | 0.976 | 0.673 |
| 60.0 | 9.9 | 58.5 | 0.644 | 4.802 | 12.228 | 0.191 | 1.159 | 0.688 |
| 75.0 | 10.0 | 73.1 | 0.557 | 4.844 | 13.374 | 0.112 | 1.153 | 0.648 |
| 90.0 | 9.9 | 87.8 | 0.136 | 4.942 | 12.338 | 0.026 | 1.152 | 0.563 |
| 105.0 | 9.9 | 102.5 | 0.247 | 5.690 | 12.189 | 0.047 | 1.202 | 0.507 |
| 120.0 | 9.5 | 116.3 | 0.385 | 5.734 | 12.052 | 0.071 | 1.234 | 0.452 |
| 135.0 | 9.5 | 131.2 | 0.473 | 4.987 | 12.041 | 0.080 | 1.125 | 0.373 |
| 150.0 | 9.6 | 147.0 | 0.410 | 4.202 | 10.981 | 0.088 | 1.043 | 0.300 |
| 165.0 | 9.7 | 162.7 | 0.503 | 3.488 | 10.974 | 0.092 | 0.935 | 0.251 |
| 180.0 | 9.8 | 178.5 | 0.508 | 3.410 | 11.000 | 0.095 | 0.744 | 0.209 |
| 195.0 | 9.9 | 194.5 | 0.548 | 3.107 | 11.236 | 0.094 | 0.698 | 0.188 |
| 210.0 | 9.9 | 210.9 | 0.433 | 3.330 | 10.938 | 0.092 | 1.048 | 0.230 |
| 225.0 | 9.7 | 227.5 | 0.501 | 4.304 | 11.579 | 0.087 | 1.308 | 0.305 |
| 240.0 | 9.6 | 243.5 | 0.429 | 5.101 | 12.044 | 0.079 | 1.452 | 0.405 |
| 255.0 | 9.8 | 257.7 | 0.357 | 5.900 | 11.974 | 0.056 | 1.438 | 0.478 |
| 270.0 | 10.0 | 272.0 | 0.163 | 5.899 | 12.320 | 0.028 | 1.374 | 0.569 |
| 285.0 | 10.1 | 286.1 | 0.504 | 5.886 | 13.041 | 0.105 | 1.302 | 0.668 |
| 300.0 | 10.1 | 300.2 | 0.731 | 5.038 | 13.009 | 0.190 | 1.209 | 0.708 |
| 315.0 | 10.0 | 314.4 | 0.814 | 4.228 | 11.858 | 0.231 | 0.980 | 0.679 |
| 330.0 | 9.9 | 329.0 | 0.980 | 3.129 | 11.792 | 0.251 | 0.711 | 0.663 |
| 345.0 | 9.9 | 343.8 | 1.084 | 2.646 | 11.612 | 0.263 | 0.413 | 0.660 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.25: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 15.0 | -0.5 | 1.219 | 1.553 | 11.782 | 0.296 | 0.194 | 0.734 |
| 15.0 | 15.0 | 14.6 | 1.141 | 2.189 | 11.788 | 0.292 | 0.411 | 0.728 |
| 30.0 | 15.0 | 29.7 | 1.132 | 2.820 | 12.192 | 0.277 | 0.691 | 0.730 |
| 45.0 | 15.1 | 44.7 | 0.904 | 3.673 | 12.216 | 0.251 | 0.927 | 0.744 |
| 60.0 | 15.1 | 59.5 | 0.712 | 4.543 | 12.768 | 0.205 | 1.125 | 0.763 |
| 75.0 | 15.2 | 74.2 | 0.462 | 4.460 | 12.798 | 0.111 | 1.066 | 0.684 |
| 90.0 | 15.2 | 89.0 | 0.125 | 4.849 | 12.333 | 0.033 | 1.060 | 0.566 |
| 105.0 | 15.2 | 104.0 | 0.314 | 5.680 | 12.345 | 0.048 | 1.151 | 0.480 |
| 120.0 | 15.0 | 118.3 | 0.301 | 5.973 | 11.679 | 0.062 | 1.420 | 0.444 |
| 135.0 | 15.0 | 133.7 | 0.328 | 4.756 | 11.190 | 0.068 | 1.499 | 0.370 |
| 150.0 | 15.3 | 149.5 | 0.267 | 3.212 | 10.548 | 0.064 | 0.917 | 0.240 |
| 165.0 | 15.2 | 164.4 | 0.345 | 2.442 | 10.450 | 0.066 | 0.527 | 0.193 |
| 180.0 | 15.2 | 179.3 | 0.327 | 2.865 | 10.229 | 0.078 | 0.467 | 0.170 |
| 195.0 | 15.1 | 194.5 | 0.346 | 4.022 | 10.078 | 0.066 | 0.618 | 0.131 |
| 210.0 | 15.1 | 209.9 | 0.453 | 4.483 | 10.808 | 0.070 | 1.117 | 0.134 |
| 225.0 | 15.0 | 225.9 | 0.446 | 4.641 | 11.536 | 0.070 | 1.609 | 0.226 |
| 240.0 | 15.0 | 241.5 | 0.354 | 5.592 | 11.744 | 0.067 | 1.716 | 0.325 |
| 255.0 | 15.1 | 256.2 | 0.344 | 5.442 | 12.196 | 0.057 | 1.530 | 0.413 |
| 270.0 | 15.2 | 270.9 | 0.162 | 5.650 | 12.098 | 0.037 | 1.413 | 0.557 |
| 285.0 | 15.2 | 285.4 | 0.416 | 5.824 | 12.557 | 0.105 | 1.313 | 0.706 |
| 300.0 | 15.2 | 299.9 | 0.695 | 5.328 | 12.513 | 0.202 | 1.177 | 0.792 |
| 315.0 | 15.1 | 314.5 | 0.889 | 3.818 | 12.288 | 0.250 | 0.896 | 0.755 |
| 330.0 | 15.0 | 329.4 | 1.057 | 2.852 | 12.026 | 0.276 | 0.622 | 0.732 |
| 345.0 | 15.0 | 344.4 | 1.268 | 2.138 | 11.939 | 0.291 | 0.344 | 0.727 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.26: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.2 | -0.2 | 1.270 | 1.820 | 12.275 | 0.319 | 0.217 | 0.848 |
| 15.0 | 20.2 | 14.9 | 1.265 | 2.299 | 12.271 | 0.314 | 0.416 | 0.844 |
| 30.0 | 20.2 | 29.9 | 1.176 | 2.803 | 12.435 | 0.298 | 0.677 | 0.848 |
| 45.0 | 20.2 | 45.0 | 0.999 | 3.735 | 12.431 | 0.269 | 0.916 | 0.865 |
| 60.0 | 20.3 | 59.8 | 0.747 | 4.827 | 13.472 | 0.217 | 1.118 | 0.872 |
| 75.0 | 20.3 | 74.6 | 0.479 | 4.376 | 13.167 | 0.116 | 1.024 | 0.734 |
| 90.0 | 20.3 | 89.5 | 0.161 | 4.666 | 12.428 | 0.042 | 1.009 | 0.562 |
| 105.0 | 20.3 | 104.5 | 0.326 | 5.589 | 11.867 | 0.055 | 1.143 | 0.450 |
| 120.0 | 20.2 | 119.3 | 0.380 | 6.504 | 11.899 | 0.065 | 1.715 | 0.435 |
| 135.0 | 20.2 | 134.7 | 0.344 | 4.914 | 11.003 | 0.069 | 1.668 | 0.313 |
| 150.0 | 20.3 | 149.7 | 0.255 | 2.911 | 10.282 | 0.063 | 0.747 | 0.167 |
| 165.0 | 20.2 | 164.6 | 0.235 | 2.523 | 10.244 | 0.071 | 0.470 | 0.140 |
| 180.0 | 20.4 | 179.8 | 0.361 | 3.597 | 10.097 | 0.078 | 0.405 | 0.121 |
| 195.0 | 20.3 | 194.9 | 0.387 | 5.216 | 10.073 | 0.087 | 0.851 | 0.142 |
| 210.0 | 20.3 | 210.0 | 0.290 | 6.085 | 9.971 | 0.067 | 1.117 | 0.150 |
| 225.0 | 20.3 | 225.0 | 0.384 | 6.137 | 10.469 | 0.055 | 1.412 | 0.180 |
| 240.0 | 20.2 | 240.7 | 0.472 | 6.825 | 11.585 | 0.070 | 2.004 | 0.281 |
| 255.0 | 20.3 | 255.6 | 0.333 | 6.824 | 11.832 | 0.060 | 1.559 | 0.356 |
| 270.0 | 20.3 | 270.4 | 0.211 | 5.806 | 12.041 | 0.047 | 1.403 | 0.541 |
| 285.0 | 20.3 | 285.2 | 0.415 | 7.057 | 12.629 | 0.108 | 1.301 | 0.753 |
| 300.0 | 20.3 | 299.9 | 0.717 | 5.246 | 12.720 | 0.210 | 1.148 | 0.901 |
| 315.0 | 20.2 | 314.6 | 0.904 | 4.108 | 12.608 | 0.266 | 0.860 | 0.880 |
| 330.0 | 20.2 | 329.6 | 1.177 | 3.022 | 12.386 | 0.297 | 0.567 | 0.855 |
| 345.0 | 20.2 | 344.7 | 1.316 | 2.228 | 12.517 | 0.314 | 0.319 | 0.844 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.27: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.1 | 1.408 | 2.170 | 13.005 | 0.339 | 0.270 | 1.030 |
| 15.0 | 25.3 | 15.0 | 1.401 | 2.507 | 13.297 | 0.334 | 0.430 | 1.027 |
| 30.0 | 25.3 | 30.0 | 1.369 | 3.321 | 12.963 | 0.317 | 0.668 | 1.029 |
| 45.0 | 25.3 | 45.0 | 1.202 | 3.956 | 13.202 | 0.285 | 0.900 | 1.034 |
| 60.0 | 25.4 | 59.9 | 0.802 | 5.185 | 13.930 | 0.230 | 1.123 | 1.013 |
| 75.0 | 25.4 | 74.8 | 0.430 | 4.523 | 13.318 | 0.120 | 0.994 | 0.780 |
| 90.0 | 25.4 | 89.7 | 0.198 | 4.625 | 12.436 | 0.051 | 1.001 | 0.555 |
| 105.0 | 25.4 | 104.7 | 0.268 | 5.685 | 11.611 | 0.064 | 1.170 | 0.414 |
| 120.0 | 25.3 | 119.8 | 0.323 | 6.468 | 10.843 | 0.079 | 2.225 | 0.417 |
| 135.0 | 25.3 | 134.8 | 0.295 | 5.302 | 10.395 | 0.086 | 1.561 | 0.240 |
| 150.0 | 25.4 | 149.7 | 0.275 | 3.167 | 10.007 | 0.084 | 0.944 | 0.147 |
| 165.0 | 25.6 | 164.7 | 0.356 | 2.683 | 10.049 | 0.098 | 0.534 | 0.122 |
| 180.0 | 25.6 | 179.8 | 0.394 | 3.385 | 10.155 | 0.106 | 0.407 | 0.114 |
| 195.0 | 25.6 | 195.0 | 0.359 | 3.741 | 10.052 | 0.095 | 0.568 | 0.113 |
| 210.0 | 25.4 | 210.0 | 0.290 | 4.431 | 9.954 | 0.069 | 0.923 | 0.158 |
| 225.0 | 25.4 | 225.0 | 0.208 | 5.644 | 9.939 | 0.057 | 1.331 | 0.210 |
| 240.0 | 25.4 | 240.2 | 0.260 | 7.646 | 9.945 | 0.066 | 2.067 | 0.261 |
| 255.0 | 25.4 | 255.3 | 0.363 | 7.842 | 11.671 | 0.067 | 1.550 | 0.310 |
| 270.0 | 25.4 | 270.2 | 0.234 | 5.834 | 12.188 | 0.056 | 1.364 | 0.526 |
| 285.0 | 25.4 | 285.1 | 0.402 | 6.859 | 12.862 | 0.111 | 1.275 | 0.807 |
| 300.0 | 25.4 | 299.9 | 0.861 | 5.209 | 14.049 | 0.220 | 1.126 | 1.030 |
| 315.0 | 25.4 | 314.8 | 1.057 | 3.873 | 13.188 | 0.279 | 0.821 | 1.044 |
| 330.0 | 25.3 | 329.8 | 1.295 | 3.281 | 12.948 | 0.313 | 0.557 | 1.037 |
| 345.0 | 25.3 | 344.8 | 1.393 | 2.505 | 13.338 | 0.334 | 0.333 | 1.031 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.28: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 6.0$ m and $T_p = 13.6$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.5 | -0.0 | 1.561 | 2.500 | 14.574 | 0.356 | 0.333 | 1.264 |
| 15.0 | 30.5 | 15.0 | 1.540 | 2.939 | 13.627 | 0.349 | 0.454 | 1.260 |
| 30.0 | 30.4 | 30.1 | 1.374 | 3.381 | 13.875 | 0.333 | 0.662 | 1.243 |
| 45.0 | 30.4 | 45.1 | 1.196 | 4.195 | 14.005 | 0.296 | 0.907 | 1.219 |
| 60.0 | 30.4 | 60.0 | 0.846 | 4.901 | 14.165 | 0.238 | 1.131 | 1.156 |
| 75.0 | 30.5 | 74.9 | 0.441 | 4.645 | 13.598 | 0.127 | 0.991 | 0.858 |
| 90.0 | 30.5 | 89.8 | 0.233 | 4.728 | 12.257 | 0.059 | 1.028 | 0.546 |
| 105.0 | 30.5 | 104.8 | 0.330 | 5.532 | 11.476 | 0.077 | 1.277 | 0.381 |
| 120.0 | 30.3 | 119.9 | 0.496 | 7.090 | 10.298 | 0.099 | 2.353 | 0.378 |
| 135.0 | 30.4 | 134.8 | 0.407 | 5.265 | 9.999 | 0.107 | 1.576 | 0.216 |
| 150.0 | 30.7 | 149.7 | 0.424 | 3.376 | 10.026 | 0.127 | 0.973 | 0.160 |
| 165.0 | 31.0 | 164.7 | 0.539 | 3.605 | 10.036 | 0.143 | 0.589 | 0.116 |
| 180.0 | 30.6 | 179.7 | 0.633 | 4.003 | 9.958 | 0.158 | 0.587 | 0.123 |
| 195.0 | 31.0 | 195.0 | 0.484 | 4.036 | 10.042 | 0.131 | 0.704 | 0.119 |
| 210.0 | 30.7 | 210.2 | 0.535 | 4.983 | 9.983 | 0.117 | 1.049 | 0.173 |
| 225.0 | 30.4 | 225.2 | 0.429 | 5.945 | 9.995 | 0.100 | 1.588 | 0.286 |
| 240.0 | 30.4 | 240.2 | 0.469 | 8.301 | 9.904 | 0.086 | 2.230 | 0.360 |
| 255.0 | 30.5 | 255.2 | 0.344 | 8.733 | 11.781 | 0.077 | 1.500 | 0.286 |
| 270.0 | 30.5 | 270.1 | 0.267 | 5.671 | 12.016 | 0.065 | 1.273 | 0.515 |
| 285.0 | 30.5 | 285.1 | 0.469 | 7.614 | 13.276 | 0.115 | 1.232 | 0.868 |
| 300.0 | 30.5 | 299.9 | 0.760 | 5.897 | 14.126 | 0.227 | 1.098 | 1.174 |
| 315.0 | 30.5 | 314.9 | 1.145 | 4.574 | 13.832 | 0.288 | 0.824 | 1.230 |
| 330.0 | 30.5 | 329.9 | 1.296 | 3.555 | 14.038 | 0.328 | 0.574 | 1.253 |
| 345.0 | 30.4 | 344.9 | 1.400 | 2.649 | 13.869 | 0.347 | 0.405 | 1.258 |
| Wind at 28.0 knots (14.4 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.29: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -0.9 | -27.2 | 2.245 | 12.384 | 15.125 | 0.379 | 1.488 | 0.995 |
| 15.0 | -1.4 | -21.1 | 1.713 | 8.493 | 13.106 | 0.369 | 1.431 | 0.952 |
| 30.0 | -3.4 | 33.0 | 1.913 | 13.623 | 15.580 | 0.320 | 2.253 | 1.101 |
| 45.0 | -4.5 | -99.2 | 1.864 | 12.546 | 15.578 | 0.305 | 2.441 | 1.169 |
| 60.0 | -5.1 | -111.1 | 2.177 | 14.641 | 15.157 | 0.289 | 2.610 | 1.271 |
| 75.0 | -0.6 | -51.8 | 1.867 | 13.921 | 16.389 | 0.288 | 2.558 | 1.152 |
| 90.0 | 0.2 | 7.1 | 1.974 | 17.942 | 17.059 | 0.323 | 2.557 | 1.158 |
| 105.0 | 0.4 | 50.3 | 2.073 | 16.972 | 18.045 | 0.311 | 2.442 | 1.156 |
| 120.0 | -0.6 | 93.8 | 3.650 | 15.458 | 15.653 | 0.235 | 2.630 | 1.165 |
| 135.0 | -3.6 | 82.6 | 2.807 | 12.626 | 15.633 | 0.283 | 2.706 | 1.185 |
| 150.0 | -3.7 | 46.3 | 2.076 | 13.385 | 16.479 | 0.325 | 2.397 | 1.080 |
| 165.0 | -2.8 | 41.1 | 2.299 | 13.326 | 15.573 | 0.341 | 1.998 | 1.003 |
| 180.0 | -1.1 | 19.7 | 1.808 | 14.691 | 14.500 | 0.367 | 1.700 | 0.996 |
| 195.0 | -0.6 | 31.3 | 1.975 | 8.254 | 15.466 | 0.372 | 1.743 | 1.041 |
| 210.0 | 0.3 | 36.8 | 1.855 | 8.949 | 15.473 | 0.374 | 1.839 | 1.093 |
| 225.0 | 0.9 | 387.4 | 1.943 | 14.672 | 16.757 | 0.359 | 2.073 | 1.147 |
| 240.0 | 0.8 | 281.2 | 2.010 | 19.421 | 15.453 | 0.267 | 2.568 | 1.218 |
| 255.0 | 0.6 | 284.9 | 2.695 | 20.265 | 17.840 | 0.304 | 2.533 | 1.260 |
| 270.0 | -2.0 | 276.9 | 1.811 | 10.984 | 15.748 | 0.502 | 3.426 | 1.646 |
| 285.0 | 0.2 | 292.5 | 1.958 | 14.090 | 16.469 | 0.344 | 2.276 | 1.222 |
| 300.0 | -0.9 | -202.8 | 4.692 | 26.275 | 16.069 | 0.379 | 2.334 | 1.254 |
| 315.0 | 0.3 | 306.3 | 2.405 | 11.077 | 15.584 | 0.379 | 1.969 | 1.145 |
| 330.0 | 0.4 | 314.6 | 1.594 | 9.991 | 16.664 | 0.389 | 1.789 | 1.116 |
| 345.0 | 0.0 | 322.0 | 1.634 | 9.378 | 14.497 | 0.380 | 1.593 | 1.046 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.30: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|---------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s² | Lat m/s² | Vert m/s² | Long m/s² | Lat m/s² | Vert m/s² |
| 0.0 | 3.6 | -26.8 | 1.902 | 7.340 | 13.208 | 0.431 | 1.372 | 1.116 |
| 15.0 | 3.5 | -19.4 | 1.839 | 6.428 | 12.649 | 0.431 | 1.207 | 1.087 |
| 30.0 | 3.3 | -13.2 | 1.934 | 5.353 | 12.301 | 0.433 | 1.065 | 1.072 |
| 45.0 | 3.0 | -8.2 | 1.777 | 5.706 | 12.806 | 0.427 | 1.137 | 1.059 |
| 60.0 | 2.9 | 2.2 | 2.223 | 5.388 | 12.975 | 0.418 | 1.242 | 1.044 |
| 75.0 | 2.7 | 8.1 | 1.681 | 6.911 | 13.765 | 0.412 | 1.475 | 1.060 |
| 90.0 | 2.9 | 14.0 | 1.829 | 16.938 | 16.273 | 0.398 | 1.706 | 1.080 |
| 105.0 | 3.1 | 24.7 | 1.785 | 11.602 | 16.390 | 0.390 | 1.702 | 1.093 |
| 120.0 | 3.1 | 21.7 | 1.874 | 13.007 | 17.477 | 0.412 | 1.489 | 1.096 |
| 135.0 | 3.1 | 26.2 | 1.938 | 15.433 | 14.519 | 0.410 | 1.457 | 1.104 |
| 150.0 | 3.2 | 33.4 | 1.806 | 9.606 | 14.494 | 0.410 | 1.519 | 1.104 |
| 165.0 | 3.3 | 38.7 | 1.730 | 9.144 | 13.721 | 0.409 | 1.584 | 1.118 |
| 180.0 | 3.9 | 146.8 | 1.568 | 7.894 | 13.951 | 0.279 | 1.529 | 0.711 |
| 195.0 | 3.7 | 23.7 | 1.949 | 9.119 | 15.542 | 0.414 | 1.673 | 1.128 |
| 210.0 | 3.8 | 388.6 | 3.457 | 7.502 | 15.106 | 0.414 | 1.816 | 1.154 |
| 225.0 | 4.2 | 359.3 | 1.654 | 16.391 | 17.386 | 0.376 | 2.149 | 1.204 |
| 240.0 | 4.4 | 283.9 | 1.486 | 17.657 | 16.348 | 0.275 | 2.466 | 1.299 |
| 255.0 | 4.1 | 286.1 | 3.437 | 19.079 | 18.154 | 0.319 | 2.492 | 1.354 |
| 270.0 | 4.0 | 291.3 | 2.669 | 14.411 | 17.621 | 0.357 | 2.318 | 1.344 |
| 285.0 | 4.2 | 295.7 | 3.240 | 11.420 | 18.104 | 0.381 | 2.179 | 1.324 |
| 300.0 | 4.4 | 301.0 | 3.905 | 8.616 | 16.299 | 0.394 | 2.018 | 1.245 |
| 315.0 | 4.3 | 310.6 | 1.908 | 7.877 | 16.192 | 0.405 | 1.853 | 1.207 |
| 330.0 | 4.1 | 318.7 | 1.685 | 9.914 | 14.606 | 0.422 | 1.655 | 1.171 |
| 345.0 | 3.8 | 324.2 | 1.784 | 8.536 | 15.031 | 0.428 | 1.583 | 1.152 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.31: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 8.8 | -5.3 | 2.337 | 5.306 | 12.910 | 0.488 | 0.759 | 1.216 |
| 15.0 | 8.4 | 6.8 | 2.500 | 4.148 | 13.065 | 0.484 | 0.865 | 1.203 |
| 30.0 | 8.0 | 16.1 | 2.418 | 4.585 | 13.374 | 0.475 | 1.072 | 1.189 |
| 45.0 | 8.0 | 30.6 | 1.986 | 6.764 | 13.306 | 0.455 | 1.379 | 1.205 |
| 60.0 | 8.4 | 49.7 | 1.615 | 7.525 | 15.164 | 0.414 | 1.821 | 1.264 |
| 75.0 | 8.3 | 59.0 | 2.293 | 14.581 | 17.106 | 0.384 | 2.000 | 1.327 |
| 90.0 | 8.6 | 73.9 | 2.413 | 10.811 | 17.636 | 0.293 | 2.160 | 1.387 |
| 105.0 | 8.5 | 82.1 | 2.147 | 17.919 | 16.351 | 0.193 | 2.336 | 1.328 |
| 120.0 | 8.3 | 92.0 | 1.181 | 21.429 | 15.811 | 0.149 | 2.428 | 1.188 |
| 135.0 | 8.1 | 99.6 | 1.369 | 17.051 | 15.163 | 0.149 | 2.468 | 1.127 |
| 150.0 | 8.1 | 87.4 | 1.630 | 16.469 | 17.675 | 0.280 | 2.340 | 1.239 |
| 165.0 | 8.1 | 125.9 | 2.569 | 9.741 | 15.474 | 0.236 | 1.950 | 0.813 |
| 180.0 | 9.1 | 174.8 | 0.756 | 5.479 | 11.426 | 0.162 | 1.366 | 0.338 |
| 195.0 | 9.6 | 195.2 | 0.871 | 5.461 | 11.739 | 0.164 | 1.289 | 0.283 |
| 210.0 | 8.5 | 274.0 | 1.763 | 19.766 | 17.224 | 0.218 | 2.661 | 1.290 |
| 225.0 | 8.3 | 275.4 | 2.050 | 20.864 | 17.709 | 0.217 | 2.676 | 1.311 |
| 240.0 | 8.3 | 276.6 | 2.272 | 20.993 | 17.467 | 0.214 | 2.687 | 1.321 |
| 255.0 | 8.4 | 280.1 | 1.946 | 17.128 | 18.139 | 0.239 | 2.550 | 1.378 |
| 270.0 | 8.5 | 283.8 | 2.640 | 17.214 | 18.623 | 0.282 | 2.483 | 1.441 |
| 285.0 | 9.4 | 289.4 | 3.219 | 11.874 | 16.464 | 0.341 | 2.346 | 1.453 |
| 300.0 | 9.7 | 300.2 | 1.697 | 8.578 | 15.689 | 0.400 | 2.016 | 1.358 |
| 315.0 | 9.5 | 313.0 | 1.919 | 7.973 | 14.764 | 0.444 | 1.674 | 1.278 |
| 330.0 | 9.3 | 327.3 | 2.075 | 6.853 | 13.961 | 0.473 | 1.262 | 1.253 |
| 345.0 | 9.1 | 341.2 | 2.304 | 5.985 | 12.905 | 0.485 | 0.980 | 1.238 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.32: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.7 | -1.3 | 2.142 | 3.435 | 13.156 | 0.528 | 0.583 | 1.357 |
| 15.0 | 14.7 | 13.8 | 2.193 | 3.919 | 13.319 | 0.523 | 0.747 | 1.352 |
| 30.0 | 14.6 | 29.0 | 1.997 | 5.377 | 13.357 | 0.507 | 1.105 | 1.366 |
| 45.0 | 14.7 | 44.2 | 1.922 | 6.867 | 13.731 | 0.471 | 1.484 | 1.372 |
| 60.0 | 14.8 | 58.9 | 1.526 | 9.949 | 16.206 | 0.412 | 1.856 | 1.443 |
| 75.0 | 14.6 | 71.8 | 3.795 | 11.039 | 19.460 | 0.342 | 1.990 | 1.544 |
| 90.0 | 14.4 | 86.4 | 1.104 | 12.075 | 18.051 | 0.134 | 2.187 | 1.317 |
| 105.0 | 14.4 | 101.2 | 1.621 | 13.714 | 17.096 | 0.130 | 2.298 | 1.042 |
| 120.0 | 14.2 | 115.1 | 1.352 | 12.938 | 13.847 | 0.136 | 2.305 | 0.840 |
| 135.0 | 14.4 | 130.4 | 1.616 | 18.861 | 14.242 | 0.126 | 2.190 | 0.671 |
| 150.0 | 14.8 | 148.0 | 0.781 | 6.098 | 12.239 | 0.113 | 1.473 | 0.431 |
| 165.0 | 14.7 | 162.9 | 0.535 | 4.700 | 10.954 | 0.127 | 1.062 | 0.353 |
| 180.0 | 14.6 | 178.3 | 0.651 | 5.224 | 10.833 | 0.133 | 0.925 | 0.266 |
| 195.0 | 14.8 | 193.9 | 0.572 | 6.052 | 10.184 | 0.120 | 1.115 | 0.209 |
| 210.0 | 14.8 | 209.8 | 0.893 | 7.724 | 11.472 | 0.123 | 1.627 | 0.234 |
| 225.0 | 14.1 | 234.1 | 1.629 | 17.490 | 14.172 | 0.166 | 2.698 | 0.716 |
| 240.0 | 13.4 | 253.5 | 0.933 | 16.855 | 15.080 | 0.154 | 2.861 | 0.934 |
| 255.0 | 13.3 | 265.5 | 2.270 | 17.920 | 17.865 | 0.162 | 2.845 | 1.135 |
| 270.0 | 13.9 | 276.0 | 1.719 | 21.856 | 17.485 | 0.172 | 2.734 | 1.387 |
| 285.0 | 14.8 | 287.1 | 2.733 | 10.445 | 18.020 | 0.318 | 2.440 | 1.585 |
| 300.0 | 15.0 | 299.9 | 1.800 | 9.025 | 17.224 | 0.413 | 2.003 | 1.495 |
| 315.0 | 14.8 | 314.0 | 1.701 | 7.841 | 14.338 | 0.472 | 1.540 | 1.402 |
| 330.0 | 14.7 | 328.7 | 2.030 | 6.216 | 13.576 | 0.508 | 1.117 | 1.380 |
| 345.0 | 14.7 | 343.6 | 2.009 | 3.799 | 13.069 | 0.522 | 0.750 | 1.363 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.33: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|----------------------------|-----------------------------|-----------------------|------------------------|-------------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.0 | -0.6 | 2.214 | 3.261 | 14.023 | 0.559 | 0.572 | 1.564 |
| 15.0 | 20.0 | 14.6 | 2.256 | 4.734 | 14.060 | 0.554 | 0.747 | 1.561 |
| 30.0 | 20.0 | 29.8 | 2.123 | 5.782 | 13.693 | 0.536 | 1.091 | 1.567 |
| 45.0 | 20.0 | 44.8 | 1.869 | 7.287 | 14.508 | 0.499 | 1.443 | 1.577 |
| 60.0 | 20.0 | 59.5 | 1.622 | 9.544 | 16.164 | 0.432 | 1.780 | 1.640 |
| 75.0 | 20.1 | 73.8 | 1.493 | 10.078 | 18.522 | 0.311 | 1.937 | 1.655 |
| 90.0 | 19.8 | 88.0 | 1.085 | 14.050 | 17.306 | 0.122 | 2.133 | 1.302 |
| 105.0 | 19.9 | 103.3 | 1.139 | 12.570 | 14.390 | 0.118 | 2.299 | 0.923 |
| 120.0 | 19.9 | 118.3 | 0.721 | 8.957 | 12.995 | 0.107 | 2.467 | 0.742 |
| 135.0 | 19.7 | 133.8 | 0.868 | 9.157 | 12.342 | 0.128 | 2.358 | 0.531 |
| 150.0 | 19.6 | 148.5 | 1.472 | 8.908 | 13.627 | 0.164 | 1.760 | 0.424 |
| 165.0 | 19.9 | 163.9 | 0.832 | 4.590 | 11.054 | 0.165 | 1.047 | 0.295 |
| 180.0 | 20.3 | 179.2 | 0.825 | 4.984 | 11.035 | 0.164 | 0.795 | 0.225 |
| 195.0 | 20.0 | 194.7 | 0.717 | 6.187 | 10.567 | 0.157 | 1.214 | 0.270 |
| 210.0 | 19.8 | 211.0 | 0.794 | 8.236 | 11.566 | 0.143 | 1.966 | 0.349 |
| 225.0 | 19.6 | 228.0 | 0.750 | 14.092 | 14.578 | 0.112 | 2.562 | 0.470 |
| 240.0 | 19.5 | 244.4 | 0.735 | 16.572 | 14.152 | 0.127 | 3.047 | 0.662 |
| 255.0 | 19.2 | 259.4 | 1.554 | 19.817 | 14.554 | 0.149 | 3.018 | 0.915 |
| 270.0 | 19.4 | 273.3 | 1.780 | 20.650 | 16.837 | 0.163 | 2.889 | 1.362 |
| 285.0 | 20.1 | 286.3 | 1.573 | 11.412 | 17.819 | 0.300 | 2.525 | 1.690 |
| 300.0 | 20.1 | 300.0 | 1.642 | 8.192 | 16.353 | 0.423 | 1.987 | 1.687 |
| 315.0 | 20.1 | 314.4 | 1.872 | 5.729 | 14.377 | 0.492 | 1.469 | 1.614 |
| 330.0 | 20.1 | 329.3 | 1.968 | 4.390 | 14.277 | 0.534 | 1.048 | 1.596 |
| 345.0 | 20.0 | 344.3 | 2.186 | 3.287 | 14.249 | 0.552 | 0.719 | 1.576 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.34: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.3 | -0.2 | 1.981 | 3.855 | 15.781 | 0.580 | 0.648 | 1.886 |
| 15.0 | 25.3 | 14.9 | 2.057 | 5.368 | 15.188 | 0.576 | 0.810 | 1.876 |
| 30.0 | 25.2 | 30.0 | 1.980 | 7.205 | 15.239 | 0.562 | 1.109 | 1.866 |
| 45.0 | 25.2 | 44.9 | 1.978 | 7.044 | 15.055 | 0.518 | 1.418 | 1.842 |
| 60.0 | 25.2 | 59.7 | 1.606 | 10.122 | 16.264 | 0.445 | 1.738 | 1.851 |
| 75.0 | 25.2 | 74.1 | 1.512 | 10.274 | 17.929 | 0.312 | 1.900 | 1.775 |
| 90.0 | 25.0 | 88.7 | 1.268 | 16.955 | 16.726 | 0.116 | 2.145 | 1.269 |
| 105.0 | 25.0 | 104.4 | 0.683 | 9.207 | 13.998 | 0.121 | 2.531 | 0.817 |
| 120.0 | 24.7 | 118.5 | 0.907 | 15.206 | 13.990 | 0.145 | 3.273 | 0.823 |
| 135.0 | 24.6 | 132.1 | 1.080 | 22.172 | 14.253 | 0.172 | 2.471 | 0.551 |
| 150.0 | 24.8 | 149.1 | 1.003 | 6.562 | 10.804 | 0.188 | 1.634 | 0.328 |
| 165.0 | 25.7 | 164.1 | 0.830 | 4.772 | 10.563 | 0.180 | 0.993 | 0.243 |
| 180.0 | 26.4 | 179.6 | 0.980 | 4.899 | 10.121 | 0.183 | 0.655 | 0.172 |
| 195.0 | 25.8 | 194.9 | 0.837 | 5.079 | 10.055 | 0.176 | 1.097 | 0.253 |
| 210.0 | 25.0 | 210.7 | 0.889 | 8.870 | 10.543 | 0.191 | 1.858 | 0.359 |
| 225.0 | 24.7 | 226.5 | 0.771 | 8.233 | 12.284 | 0.159 | 2.630 | 0.489 |
| 240.0 | 24.6 | 242.1 | 0.726 | 15.409 | 13.522 | 0.138 | 3.462 | 0.652 |
| 255.0 | 24.7 | 257.1 | 0.651 | 16.525 | 13.692 | 0.143 | 3.110 | 0.748 |
| 270.0 | 24.9 | 271.9 | 1.228 | 16.881 | 16.200 | 0.133 | 2.920 | 1.292 |
| 285.0 | 25.2 | 286.0 | 4.079 | 12.447 | 17.027 | 0.306 | 2.582 | 1.791 |
| 300.0 | 25.3 | 300.1 | 1.540 | 8.649 | 16.370 | 0.431 | 2.036 | 1.906 |
| 315.0 | 25.3 | 314.7 | 2.041 | 5.563 | 15.207 | 0.508 | 1.481 | 1.890 |
| 330.0 | 25.3 | 329.7 | 1.922 | 4.720 | 15.490 | 0.552 | 1.078 | 1.902 |
| 345.0 | 25.3 | 344.7 | 2.039 | 3.384 | 15.994 | 0.572 | 0.748 | 1.888 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.35: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 11.0$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------|-----------------------|------------------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | 0.0 | 2.003 | 4.182 | 16.529 | 0.593 | 0.752 | 2.257 |
| 15.0 | 30.4 | 15.1 | 2.055 | 6.262 | 16.669 | 0.592 | 0.899 | 2.238 |
| 30.0 | 30.4 | 30.1 | 1.949 | 7.749 | 16.017 | 0.573 | 1.161 | 2.198 |
| 45.0 | 30.4 | 45.0 | 2.000 | 7.269 | 16.136 | 0.535 | 1.433 | 2.146 |
| 60.0 | 30.3 | 59.7 | 1.734 | 7.580 | 16.450 | 0.459 | 1.691 | 2.085 |
| 75.0 | 30.3 | 74.3 | 1.881 | 11.367 | 19.093 | 0.317 | 1.855 | 1.887 |
| 90.0 | 30.1 | 89.0 | 1.026 | 16.122 | 16.526 | 0.121 | 2.216 | 1.253 |
| 105.0 | 30.0 | 104.3 | 2.090 | 20.345 | 18.470 | 0.152 | 2.959 | 0.833 |
| 120.0 | 29.7 | 118.6 | 1.261 | 15.259 | 12.365 | 0.170 | 3.013 | 0.649 |
| 135.0 | 29.9 | 134.1 | 0.999 | 8.274 | 11.539 | 0.209 | 2.331 | 0.425 |
| 150.0 | 30.5 | 147.4 | 1.063 | 8.091 | 11.450 | 0.223 | 1.624 | 0.399 |
| 165.0 | 31.0 | 162.7 | 1.253 | 6.235 | 10.157 | 0.250 | 1.188 | 0.365 |
| 180.0 | 31.1 | 178.6 | 1.341 | 6.106 | 10.351 | 0.273 | 1.172 | 0.378 |
| 195.0 | 31.4 | 194.6 | 1.488 | 6.559 | 10.577 | 0.264 | 1.355 | 0.363 |
| 210.0 | 30.8 | 211.0 | 1.221 | 6.936 | 10.511 | 0.229 | 1.852 | 0.350 |
| 225.0 | 29.7 | 226.0 | 1.035 | 8.912 | 12.464 | 0.228 | 2.553 | 0.530 |
| 240.0 | 29.8 | 240.9 | 0.599 | 9.274 | 12.203 | 0.153 | 3.349 | 0.661 |
| 255.0 | 29.9 | 256.1 | 1.784 | 24.275 | 15.413 | 0.163 | 3.190 | 0.750 |
| 270.0 | 30.1 | 271.2 | 1.347 | 18.716 | 15.910 | 0.135 | 2.915 | 1.235 |
| 285.0 | 30.3 | 285.7 | 2.053 | 13.250 | 17.117 | 0.298 | 2.662 | 1.917 |
| 300.0 | 30.4 | 300.1 | 1.662 | 8.143 | 16.718 | 0.438 | 2.121 | 2.144 |
| 315.0 | 30.4 | 315.0 | 1.965 | 5.611 | 16.920 | 0.518 | 1.603 | 2.198 |
| 330.0 | 30.4 | 329.9 | 1.919 | 4.498 | 16.667 | 0.559 | 1.165 | 2.238 |
| 345.0 | 30.4 | 345.0 | 2.178 | 3.996 | 17.095 | 0.582 | 0.862 | 2.251 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.36: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 0.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | -1.5 | -109.1 | 0.985 | 4.531 | 11.789 | 0.193 | 1.405 | 0.532 |
| 15.0 | -2.4 | -147.9 | 0.927 | 4.628 | 12.344 | 0.184 | 1.083 | 0.575 |
| 30.0 | -1.8 | -69.5 | 1.155 | 5.619 | 12.234 | 0.187 | 1.608 | 0.559 |
| 45.0 | -0.2 | 21.9 | 0.797 | 4.194 | 12.226 | 0.204 | 1.073 | 0.558 |
| 60.0 | 0.6 | 49.0 | 0.740 | 5.003 | 11.996 | 0.159 | 1.325 | 0.574 |
| 75.0 | 0.7 | 69.2 | 0.587 | 5.332 | 12.445 | 0.093 | 1.367 | 0.549 |
| 90.0 | 0.1 | 90.9 | 0.230 | 5.336 | 12.114 | 0.031 | 1.388 | 0.533 |
| 105.0 | -0.5 | 103.2 | 0.419 | 5.717 | 12.043 | 0.053 | 1.441 | 0.551 |
| 120.0 | -1.4 | 113.0 | 0.618 | 6.182 | 12.886 | 0.085 | 1.471 | 0.570 |
| 135.0 | -2.1 | 121.6 | 0.490 | 6.079 | 12.228 | 0.117 | 1.420 | 0.578 |
| 150.0 | -2.6 | 131.7 | 0.554 | 5.435 | 11.747 | 0.149 | 1.298 | 0.574 |
| 165.0 | -2.5 | 144.3 | 0.729 | 4.502 | 12.083 | 0.176 | 1.057 | 0.567 |
| 180.0 | -1.7 | 164.5 | 0.919 | 3.647 | 12.337 | 0.195 | 0.619 | 0.541 |
| 195.0 | 0.4 | 236.4 | 0.865 | 6.413 | 12.220 | 0.126 | 1.474 | 0.545 |
| 210.0 | 0.0 | 244.9 | 0.835 | 7.227 | 12.007 | 0.104 | 1.523 | 0.551 |
| 225.0 | -0.2 | 253.3 | 0.553 | 6.126 | 11.948 | 0.078 | 1.532 | 0.550 |
| 240.0 | -0.4 | 261.6 | 0.381 | 6.042 | 11.844 | 0.052 | 1.498 | 0.532 |
| 255.0 | -0.6 | 270.4 | 0.221 | 6.076 | 11.901 | 0.033 | 1.449 | 0.522 |
| 270.0 | -0.6 | 279.9 | 0.360 | 6.363 | 12.110 | 0.047 | 1.396 | 0.523 |
| 285.0 | -0.5 | 288.9 | 0.597 | 5.890 | 12.476 | 0.080 | 1.343 | 0.540 |
| 300.0 | -0.5 | 297.9 | 0.646 | 6.068 | 12.383 | 0.114 | 1.278 | 0.552 |
| 315.0 | -0.4 | 307.0 | 0.700 | 5.736 | 12.112 | 0.144 | 1.206 | 0.554 |
| 330.0 | -0.6 | 315.5 | 0.774 | 5.284 | 11.796 | 0.169 | 1.132 | 0.552 |
| 345.0 | -0.8 | 324.3 | 0.944 | 5.033 | 11.780 | 0.187 | 1.045 | 0.543 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.37: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 5.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 3.8 | -29.6 | 1.012 | 5.722 | 11.699 | 0.229 | 1.065 | 0.604 |
| 15.0 | 3.6 | -22.7 | 1.013 | 4.503 | 11.781 | 0.238 | 1.009 | 0.604 |
| 30.0 | 3.5 | -14.4 | 1.093 | 4.040 | 11.605 | 0.241 | 0.933 | 0.599 |
| 45.0 | 3.5 | -3.6 | 1.256 | 3.915 | 11.402 | 0.246 | 0.874 | 0.606 |
| 60.0 | 3.8 | 26.6 | 0.908 | 4.658 | 12.208 | 0.226 | 1.063 | 0.630 |
| 75.0 | 4.3 | 58.4 | 0.684 | 5.443 | 12.642 | 0.139 | 1.318 | 0.621 |
| 90.0 | 4.5 | 79.9 | 0.361 | 5.407 | 12.392 | 0.047 | 1.285 | 0.569 |
| 105.0 | 4.4 | 95.6 | 0.222 | 5.867 | 12.143 | 0.025 | 1.324 | 0.555 |
| 120.0 | 4.1 | 107.0 | 0.299 | 6.383 | 12.618 | 0.049 | 1.345 | 0.558 |
| 135.0 | 3.8 | 115.4 | 0.392 | 6.589 | 12.125 | 0.071 | 1.356 | 0.555 |
| 150.0 | 3.5 | 124.8 | 0.649 | 5.993 | 12.280 | 0.095 | 1.304 | 0.532 |
| 165.0 | 3.4 | 134.5 | 0.769 | 5.858 | 12.347 | 0.116 | 1.196 | 0.500 |
| 180.0 | 3.3 | 146.5 | 0.936 | 5.138 | 12.018 | 0.133 | 1.027 | 0.456 |
| 195.0 | 3.4 | 162.2 | 0.870 | 5.943 | 12.012 | 0.144 | 0.897 | 0.408 |
| 210.0 | 4.4 | 216.2 | 0.757 | 5.474 | 11.679 | 0.131 | 1.202 | 0.393 |
| 225.0 | 4.3 | 237.0 | 0.656 | 6.109 | 11.948 | 0.100 | 1.428 | 0.460 |
| 240.0 | 4.4 | 250.4 | 0.489 | 6.182 | 12.286 | 0.071 | 1.498 | 0.483 |
| 255.0 | 4.5 | 262.4 | 0.291 | 6.465 | 11.672 | 0.040 | 1.499 | 0.493 |
| 270.0 | 4.6 | 274.8 | 0.158 | 5.960 | 12.078 | 0.023 | 1.452 | 0.512 |
| 285.0 | 4.7 | 287.5 | 0.421 | 7.319 | 12.316 | 0.068 | 1.404 | 0.544 |
| 300.0 | 4.7 | 299.8 | 0.541 | 5.653 | 12.140 | 0.131 | 1.320 | 0.582 |
| 315.0 | 4.5 | 310.0 | 0.732 | 6.164 | 12.680 | 0.175 | 1.238 | 0.596 |
| 330.0 | 4.1 | 317.1 | 0.869 | 6.054 | 11.853 | 0.198 | 1.192 | 0.601 |
| 345.0 | 3.9 | 323.5 | 0.988 | 6.045 | 11.764 | 0.216 | 1.134 | 0.604 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.38: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 10.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 9.4 | -3.6 | 1.327 | 3.781 | 11.637 | 0.285 | 0.564 | 0.698 |
| 15.0 | 9.5 | 11.9 | 1.159 | 3.356 | 11.744 | 0.281 | 0.674 | 0.715 |
| 30.0 | 9.6 | 27.4 | 1.085 | 3.831 | 11.904 | 0.262 | 0.892 | 0.726 |
| 45.0 | 9.7 | 42.7 | 0.834 | 4.384 | 12.694 | 0.221 | 1.081 | 0.718 |
| 60.0 | 9.8 | 57.5 | 0.616 | 4.903 | 12.687 | 0.158 | 1.171 | 0.680 |
| 75.0 | 9.9 | 72.9 | 0.365 | 4.792 | 12.754 | 0.080 | 1.101 | 0.622 |
| 90.0 | 9.9 | 88.0 | 0.138 | 5.148 | 12.347 | 0.031 | 1.092 | 0.569 |
| 105.0 | 9.9 | 103.1 | 0.233 | 5.785 | 12.253 | 0.041 | 1.157 | 0.546 |
| 120.0 | 9.5 | 116.4 | 0.455 | 6.073 | 12.711 | 0.063 | 1.173 | 0.531 |
| 135.0 | 9.2 | 130.3 | 0.640 | 5.550 | 12.667 | 0.079 | 1.060 | 0.471 |
| 150.0 | 9.1 | 144.4 | 0.587 | 4.887 | 12.000 | 0.090 | 1.005 | 0.403 |
| 165.0 | 9.0 | 159.4 | 0.516 | 4.149 | 11.384 | 0.103 | 1.018 | 0.351 |
| 180.0 | 9.4 | 176.8 | 0.522 | 4.408 | 10.694 | 0.107 | 0.960 | 0.280 |
| 195.0 | 9.7 | 193.7 | 0.677 | 4.944 | 10.959 | 0.108 | 0.963 | 0.212 |
| 210.0 | 9.6 | 211.3 | 0.789 | 5.921 | 11.803 | 0.099 | 1.202 | 0.262 |
| 225.0 | 9.5 | 228.4 | 0.668 | 7.881 | 11.606 | 0.092 | 1.533 | 0.332 |
| 240.0 | 9.5 | 243.7 | 0.505 | 6.738 | 11.936 | 0.075 | 1.657 | 0.398 |
| 255.0 | 9.8 | 257.4 | 0.435 | 6.703 | 12.100 | 0.054 | 1.628 | 0.433 |
| 270.0 | 9.9 | 271.7 | 0.214 | 7.898 | 11.967 | 0.034 | 1.599 | 0.488 |
| 285.0 | 10.0 | 285.8 | 0.395 | 8.455 | 12.175 | 0.064 | 1.500 | 0.547 |
| 300.0 | 9.9 | 300.0 | 0.601 | 5.526 | 12.317 | 0.142 | 1.383 | 0.612 |
| 315.0 | 9.8 | 313.7 | 0.783 | 5.135 | 12.248 | 0.206 | 1.154 | 0.644 |
| 330.0 | 9.6 | 327.5 | 1.033 | 4.747 | 12.060 | 0.250 | 0.914 | 0.667 |
| 345.0 | 9.4 | 341.6 | 1.147 | 4.403 | 11.631 | 0.274 | 0.736 | 0.683 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.39: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 15.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 14.9 | -1.1 | 1.469 | 3.182 | 11.853 | 0.317 | 0.456 | 0.773 |
| 15.0 | 14.9 | 14.1 | 1.311 | 3.380 | 12.182 | 0.311 | 0.657 | 0.790 |
| 30.0 | 14.9 | 29.2 | 1.249 | 4.282 | 12.298 | 0.286 | 0.912 | 0.796 |
| 45.0 | 15.0 | 44.2 | 0.881 | 4.828 | 13.099 | 0.240 | 1.093 | 0.781 |
| 60.0 | 15.0 | 59.0 | 0.745 | 5.475 | 13.582 | 0.165 | 1.210 | 0.732 |
| 75.0 | 15.1 | 74.0 | 0.357 | 5.027 | 12.805 | 0.082 | 1.007 | 0.638 |
| 90.0 | 15.1 | 89.0 | 0.167 | 4.827 | 12.477 | 0.045 | 0.994 | 0.569 |
| 105.0 | 15.1 | 104.1 | 0.390 | 5.294 | 12.029 | 0.057 | 1.079 | 0.518 |
| 120.0 | 14.9 | 118.3 | 0.468 | 5.955 | 12.563 | 0.074 | 1.281 | 0.537 |
| 135.0 | 14.9 | 133.5 | 0.508 | 5.429 | 11.904 | 0.085 | 1.261 | 0.461 |
| 150.0 | 14.9 | 148.6 | 0.496 | 4.324 | 11.442 | 0.094 | 0.990 | 0.376 |
| 165.0 | 15.0 | 163.8 | 0.389 | 3.745 | 10.734 | 0.088 | 0.632 | 0.289 |
| 180.0 | 14.9 | 178.9 | 0.510 | 4.166 | 10.326 | 0.105 | 0.739 | 0.252 |
| 195.0 | 15.0 | 194.3 | 0.389 | 5.049 | 10.137 | 0.078 | 0.814 | 0.198 |
| 210.0 | 15.0 | 209.9 | 0.545 | 5.746 | 10.656 | 0.087 | 1.289 | 0.173 |
| 225.0 | 14.8 | 226.2 | 0.518 | 5.802 | 11.106 | 0.090 | 1.767 | 0.234 |
| 240.0 | 14.9 | 241.8 | 0.637 | 7.113 | 11.789 | 0.079 | 1.940 | 0.327 |
| 255.0 | 15.1 | 256.1 | 0.441 | 7.050 | 11.975 | 0.064 | 1.830 | 0.380 |
| 270.0 | 15.1 | 270.8 | 0.260 | 7.955 | 12.072 | 0.048 | 1.743 | 0.471 |
| 285.0 | 15.2 | 285.4 | 0.387 | 7.721 | 12.467 | 0.066 | 1.671 | 0.563 |
| 300.0 | 15.1 | 299.9 | 0.652 | 6.531 | 12.581 | 0.150 | 1.480 | 0.651 |
| 315.0 | 15.0 | 314.3 | 0.867 | 5.243 | 12.160 | 0.226 | 1.172 | 0.700 |
| 330.0 | 14.9 | 328.9 | 1.182 | 4.085 | 12.065 | 0.276 | 0.861 | 0.732 |
| 345.0 | 14.9 | 343.8 | 1.285 | 3.801 | 12.223 | 0.307 | 0.561 | 0.757 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.40: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 20.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 20.1 | -0.5 | 1.450 | 3.316 | 12.154 | 0.344 | 0.489 | 0.884 |
| 15.0 | 20.1 | 14.7 | 1.492 | 3.669 | 12.431 | 0.337 | 0.724 | 0.896 |
| 30.0 | 20.1 | 29.8 | 1.324 | 4.331 | 12.773 | 0.310 | 1.008 | 0.899 |
| 45.0 | 20.1 | 44.8 | 0.976 | 5.158 | 12.907 | 0.258 | 1.208 | 0.866 |
| 60.0 | 20.2 | 59.6 | 0.619 | 6.094 | 12.958 | 0.175 | 1.365 | 0.800 |
| 75.0 | 20.2 | 74.4 | 0.352 | 5.390 | 12.769 | 0.086 | 1.027 | 0.666 |
| 90.0 | 20.3 | 89.4 | 0.223 | 4.698 | 12.530 | 0.059 | 0.978 | 0.561 |
| 105.0 | 20.3 | 104.5 | 0.383 | 5.308 | 12.277 | 0.074 | 1.027 | 0.480 |
| 120.0 | 20.1 | 119.2 | 0.351 | 5.882 | 11.562 | 0.092 | 1.669 | 0.537 |
| 135.0 | 20.1 | 134.3 | 0.408 | 5.468 | 11.196 | 0.099 | 1.303 | 0.407 |
| 150.0 | 20.2 | 149.3 | 0.446 | 3.948 | 10.626 | 0.101 | 0.781 | 0.289 |
| 165.0 | 20.1 | 164.3 | 0.584 | 3.353 | 10.920 | 0.131 | 0.649 | 0.298 |
| 180.0 | 20.3 | 179.4 | 0.447 | 3.701 | 10.250 | 0.101 | 0.547 | 0.209 |
| 195.0 | 20.2 | 194.8 | 0.541 | 6.220 | 10.128 | 0.112 | 1.025 | 0.252 |
| 210.0 | 20.1 | 210.0 | 0.600 | 7.297 | 10.028 | 0.103 | 1.418 | 0.276 |
| 225.0 | 20.1 | 225.1 | 0.542 | 7.524 | 10.179 | 0.089 | 1.775 | 0.270 |
| 240.0 | 20.1 | 240.8 | 0.498 | 7.974 | 10.833 | 0.092 | 2.190 | 0.282 |
| 255.0 | 20.2 | 255.5 | 0.508 | 8.562 | 11.406 | 0.077 | 1.908 | 0.359 |
| 270.0 | 20.3 | 270.4 | 0.318 | 8.356 | 12.076 | 0.060 | 1.849 | 0.471 |
| 285.0 | 20.3 | 285.2 | 0.328 | 7.594 | 12.080 | 0.070 | 1.712 | 0.588 |
| 300.0 | 20.2 | 299.9 | 0.677 | 7.733 | 12.833 | 0.159 | 1.522 | 0.709 |
| 315.0 | 20.2 | 314.5 | 0.916 | 5.752 | 12.401 | 0.246 | 1.169 | 0.790 |
| 330.0 | 20.1 | 329.3 | 1.275 | 4.240 | 12.434 | 0.303 | 0.819 | 0.843 |
| 345.0 | 20.1 | 344.4 | 1.347 | 3.489 | 12.355 | 0.333 | 0.530 | 0.866 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.41: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 25.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 25.2 | -0.2 | 1.454 | 3.561 | 13.367 | 0.366 | 0.565 | 1.066 |
| 15.0 | 25.2 | 14.9 | 1.461 | 4.189 | 13.085 | 0.360 | 0.795 | 1.074 |
| 30.0 | 25.2 | 30.0 | 1.349 | 5.042 | 13.231 | 0.332 | 1.078 | 1.061 |
| 45.0 | 25.2 | 45.0 | 1.051 | 5.277 | 13.056 | 0.275 | 1.314 | 0.991 |
| 60.0 | 25.3 | 59.8 | 0.665 | 6.480 | 13.825 | 0.188 | 1.492 | 0.886 |
| 75.0 | 25.3 | 74.6 | 0.379 | 5.289 | 13.314 | 0.092 | 1.105 | 0.689 |
| 90.0 | 25.3 | 89.6 | 0.279 | 4.616 | 12.396 | 0.072 | 1.039 | 0.553 |
| 105.0 | 25.3 | 104.6 | 0.408 | 5.273 | 11.993 | 0.094 | 1.038 | 0.437 |
| 120.0 | 25.2 | 119.6 | 0.403 | 5.937 | 10.817 | 0.112 | 1.866 | 0.477 |
| 135.0 | 25.2 | 134.6 | 0.443 | 5.854 | 10.726 | 0.120 | 1.469 | 0.324 |
| 150.0 | 25.3 | 149.5 | 0.590 | 4.978 | 10.460 | 0.140 | 1.195 | 0.280 |
| 165.0 | 25.4 | 164.5 | 0.669 | 4.011 | 10.517 | 0.132 | 0.580 | 0.206 |
| 180.0 | 25.8 | 179.8 | 0.476 | 3.208 | 10.178 | 0.135 | 0.345 | 0.168 |
| 195.0 | 25.6 | 194.9 | 0.684 | 4.401 | 10.126 | 0.121 | 0.696 | 0.187 |
| 210.0 | 25.3 | 210.1 | 0.611 | 6.468 | 10.105 | 0.126 | 1.339 | 0.318 |
| 225.0 | 25.3 | 225.0 | 0.333 | 6.875 | 10.021 | 0.096 | 1.476 | 0.335 |
| 240.0 | 25.2 | 240.3 | 0.512 | 9.030 | 10.121 | 0.100 | 2.194 | 0.328 |
| 255.0 | 25.3 | 255.2 | 0.471 | 9.271 | 11.264 | 0.089 | 1.867 | 0.368 |
| 270.0 | 25.3 | 270.2 | 0.324 | 7.886 | 12.014 | 0.071 | 1.830 | 0.484 |
| 285.0 | 25.3 | 285.1 | 0.352 | 8.558 | 12.309 | 0.076 | 1.808 | 0.623 |
| 300.0 | 25.3 | 299.9 | 0.664 | 8.027 | 12.763 | 0.169 | 1.541 | 0.786 |
| 315.0 | 25.3 | 314.7 | 0.997 | 6.065 | 12.698 | 0.262 | 1.162 | 0.923 |
| 330.0 | 25.2 | 329.6 | 1.350 | 4.882 | 13.294 | 0.323 | 0.834 | 1.015 |
| 345.0 | 25.2 | 344.7 | 1.578 | 3.647 | 13.044 | 0.355 | 0.573 | 1.051 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

Table V.42: Accelerations at Flight Deck: JONSWAP Spectrum with $H_s = 9.0$ m and $T_p = 17.1$ s; Ship's speed is 30.0 Knots

| Cmd Heading | Actual Mean | | Absolute Maximum | | | Standard Deviation | | |
|------------------------------------------------------------------------|--------------------|---------------------|-------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
| ψ_{MHP} deg | Speed kts | ψ_{MHP} deg | Long m/s^2 | Lat m/s^2 | Vert m/s^2 | Long m/s^2 | Lat m/s^2 | Vert m/s^2 |
| 0.0 | 30.4 | -0.0 | 1.546 | 4.579 | 14.260 | 0.385 | 0.673 | 1.303 |
| 15.0 | 30.4 | 15.1 | 1.607 | 5.211 | 13.878 | 0.379 | 0.874 | 1.304 |
| 30.0 | 30.4 | 30.1 | 1.368 | 5.830 | 13.963 | 0.350 | 1.134 | 1.274 |
| 45.0 | 30.4 | 45.1 | 1.145 | 6.042 | 14.426 | 0.294 | 1.375 | 1.175 |
| 60.0 | 30.4 | 60.0 | 0.803 | 6.750 | 14.006 | 0.200 | 1.599 | 0.981 |
| 75.0 | 30.4 | 74.7 | 0.345 | 5.321 | 12.966 | 0.099 | 1.213 | 0.718 |
| 90.0 | 30.4 | 89.7 | 0.338 | 4.896 | 12.111 | 0.085 | 1.167 | 0.549 |
| 105.0 | 30.4 | 104.7 | 0.466 | 4.830 | 11.293 | 0.113 | 1.093 | 0.402 |
| 120.0 | 30.3 | 119.7 | 0.496 | 6.824 | 10.575 | 0.139 | 2.240 | 0.458 |
| 135.0 | 30.2 | 134.5 | 0.709 | 6.780 | 10.769 | 0.174 | 1.884 | 0.354 |
| 150.0 | 30.3 | 149.2 | 0.823 | 7.110 | 10.189 | 0.225 | 1.462 | 0.321 |
| 165.0 | 30.8 | 164.0 | 0.858 | 4.219 | 10.109 | 0.198 | 0.692 | 0.219 |
| 180.0 | 31.2 | 179.7 | 0.615 | 4.469 | 9.954 | 0.190 | 0.547 | 0.173 |
| 195.0 | 30.9 | 194.7 | 0.840 | 4.263 | 9.976 | 0.188 | 0.771 | 0.204 |
| 210.0 | 30.5 | 210.3 | 0.789 | 7.427 | 10.151 | 0.203 | 1.460 | 0.355 |
| 225.0 | 30.4 | 225.1 | 0.552 | 6.769 | 10.028 | 0.134 | 1.661 | 0.411 |
| 240.0 | 30.4 | 240.1 | 0.501 | 8.751 | 9.966 | 0.117 | 2.170 | 0.466 |
| 255.0 | 30.4 | 255.1 | 0.510 | 8.813 | 11.527 | 0.107 | 1.704 | 0.384 |
| 270.0 | 30.4 | 270.1 | 0.320 | 7.830 | 11.937 | 0.084 | 1.734 | 0.506 |
| 285.0 | 30.4 | 285.1 | 0.363 | 8.408 | 11.978 | 0.083 | 1.746 | 0.670 |
| 300.0 | 30.4 | 299.9 | 0.643 | 8.061 | 13.010 | 0.180 | 1.526 | 0.877 |
| 315.0 | 30.4 | 314.8 | 1.045 | 6.903 | 13.501 | 0.280 | 1.138 | 1.110 |
| 330.0 | 30.4 | 329.8 | 1.337 | 5.184 | 13.865 | 0.341 | 0.832 | 1.237 |
| 345.0 | 30.4 | 344.9 | 1.357 | 4.352 | 13.947 | 0.372 | 0.653 | 1.281 |
| Wind at 38.7 knots (19.9 m/s) is from the starboard beam in all cases. | | | | | | | | |

This page intentionally left blank.

Annex W

NATO Sea State Table

Table W.1: NATO Sea State Table (After Table D-1 in NATO STANAG 4194)

| Sea State Number | Significant Wave Height (m) | | Sustained Wind Speed (Knots)* | | % Prob. of Sea State | Wave Period (s) | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------|-------------------------------|--------|----------------------|-----------------|-------------|
| | Range | Mean | Range | Mean | | Range† | Most Prob.‡ |
| 0 - 1 | 0.00 - 0.10 | 0.05 | 0 - 6 | 3.0 | 0.70 | — | — |
| 2 | 0.10 - 0.50 | 0.30 | 7 - 10 | 8.5 | 6.80 | 3.3 - 12.8 | 7.5 |
| 3 | 0.50 - 1.25 | 0.88 | 11 - 16 | 13.5 | 23.70 | 5.0 - 14.8 | 7.5 |
| 4 | 1.25 - 2.50 | 1.88 | 17 - 21 | 19.0 | 27.80 | 6.1 - 15.2 | 8.8 |
| 5 | 2.50 - 4.00 | 3.25 | 22 - 27 | 24.5 | 20.64 | 8.3 - 15.5 | 9.7 |
| 6 | 4.00 - 6.00 | 5.00 | 28 - 47 | 37.5 | 13.15 | 9.8 - 16.2 | 12.4 |
| 7 | 6.00 - 9.00 | 7.50 | 48 - 55 | 51.5 | 6.05 | 11.8 - 18.5 | 15.0 |
| 8 | 9.00 - 14.00 | 11.50 | 56 - 63 | 59.5 | 1.11 | 14.2 - 18.6 | 16.4 |
| > 8 | > 14.00 | > 14.00 | > 63 | > 63.0 | 0.05 | 15.7 - 23.7 | 20.0 |
| <p>*Ambient wind sustained at 19.5 m above surface to generate fully-developed seas. To convert to another altitude, H_2, apply $V_2 = V_1 (H_2/19.5)^{1/7}$ †Min. is 5 percentile and max. is 95 percentile for periods give wave height range. ‡Based on periods associated with central frequencies incl. in Hindcast Climatology.</p> | | | | | | | |

This page intentionally left blank.

| DOCUMENT CONTROL DATA | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| (Security classification of title, body of abstract and indexing annotation must be entered when document is classified) | | |
| 1. ORIGINATOR (the name and address of the organization preparing the document. Organizations for whom the document was prepared, e.g. Centre sponsoring a contractor's report, or tasking agency, are entered in section 8.) Defence R&D Canada - Atlantic P. O. Box 1012, Dartmouth, NS, Canada B2Y 3Z7 | 2. SECURITY CLASSIFICATION (overall security classification of the document including special warning terms if applicable). UNCLASSIFIED | |
| 3. TITLE (the complete document title as indicated on the title page. Its classification should be indicated by the appropriate abbreviation (S,C,R or U) in parentheses after the title). Tabulated Data for FREDYN Simulations of HALIFAX for Determining Helicopter Securing Loads (Revised March 2006) | | |
| 4. AUTHORS (Last name, first name, middle initial. If military, show rank, e.g. Doe, Maj. John E.) Perrault, Doug ; McTaggart, Kevin | | |
| 5. DATE OF PUBLICATION (month and year of publication of document) March 2006 | 6a. NO. OF PAGES (total containing information. Include Annexes, Appendices, etc). 489 | 6b. NO. OF REFS (total cited in document) 1 |
| 7. DESCRIPTIVE NOTES (the category of the document, e.g. technical report, technical note or memorandum. If appropriate, enter the type of report, e.g. interim, progress, summary, annual or final. Give the inclusive dates when a specific reporting period is covered). Technical Memorandum | | |
| 8. SPONSORING ACTIVITY (the name of the department project office or laboratory sponsoring the research and development. Include address). Defence R&D Canada - Atlantic P. O. Box 1012, Dartmouth, NS, Canada B2Y 3Z7 | | |
| 9a. PROJECT OR GRANT NO. (if appropriate, the applicable research and development project or grant number under which the document was written. Specify whether project or grant). 11GK12 | 9b. CONTRACT NO. (if appropriate, the applicable number under which the document was written). | |
| 10a. ORIGINATOR'S DOCUMENT NUMBER (the official document number by which the document is identified by the originating activity. This number must be unique.) DRDC Atlantic TM 2004-044 | 10b. OTHER DOCUMENT NOS. (Any other numbers which may be assigned this document either by the originator or by the sponsor.) | |
| 11. DOCUMENT AVAILABILITY (any limitations on further dissemination of the document, other than those imposed by security classification) (X) Unlimited distribution () Defence departments and defence contractors; further distribution only as approved () Defence departments and Canadian defence contractors; further distribution only as approved () Government departments and agencies; further distribution only as approved () Defence departments; further distribution only as approved () Other (please specify): | | |
| 12. DOCUMENT ANNOUNCEMENT (any limitation to the bibliographic announcement of this document. This will normally correspond to the Document Availability (11). However, where further distribution beyond the audience specified in (11) is possible, a wider announcement audience may be selected). | | |

13. ABSTRACT (a brief and factual summary of the document. It may also appear elsewhere in the body of the document itself. It is highly desirable that the abstract of classified documents be unclassified. Each paragraph of the abstract shall begin with an indication of the security classification of the information in the paragraph (unless the document itself is unclassified) represented as (S), (C), (R), or (U). It is not necessary to include here abstracts in both official languages unless the text is bilingual).

In support of procurement of new maritime helicopters, DRDC Atlantic was tasked to simulate motions of the HALIFAX class in seaways. The data produced will aid in the determination of helicopter securing loads, which are highly dependent upon the motions of the ship. The present work reports a systematic series of simulations modelling a HALIFAX class frigate with nominally steady speed and heading (course-keeping) in a variety of seaway conditions. This memorandum provides the data in a tabulated format for quick reference. A companion report (DRDC TM 2004-043) describes the simulation conditions and key results.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS (technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. They should be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location may also be included. If possible keywords should be selected from a published thesaurus. e.g. Thesaurus of Engineering and Scientific Terms (TEST) and that thesaurus-identified. If it not possible to select indexing terms which are Unclassified, the classification of each should be indicated as with the title).

Ship motions
Helicopter securing loads
Open waters
Coastal waters
Heave
Roll angles
Pitch angles
Longitudinal force estimator
Lateral force estimator
Vertical force estimator

This page intentionally left blank.

Defence R&D Canada

Canada's leader in defence
and National Security
Science and Technology

R & D pour la défense Canada

Chef de file au Canada en matière
de science et de technologie pour
la défense et la sécurité nationale



www.drdc-rddc.gc.ca